THE JOURNAL OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS

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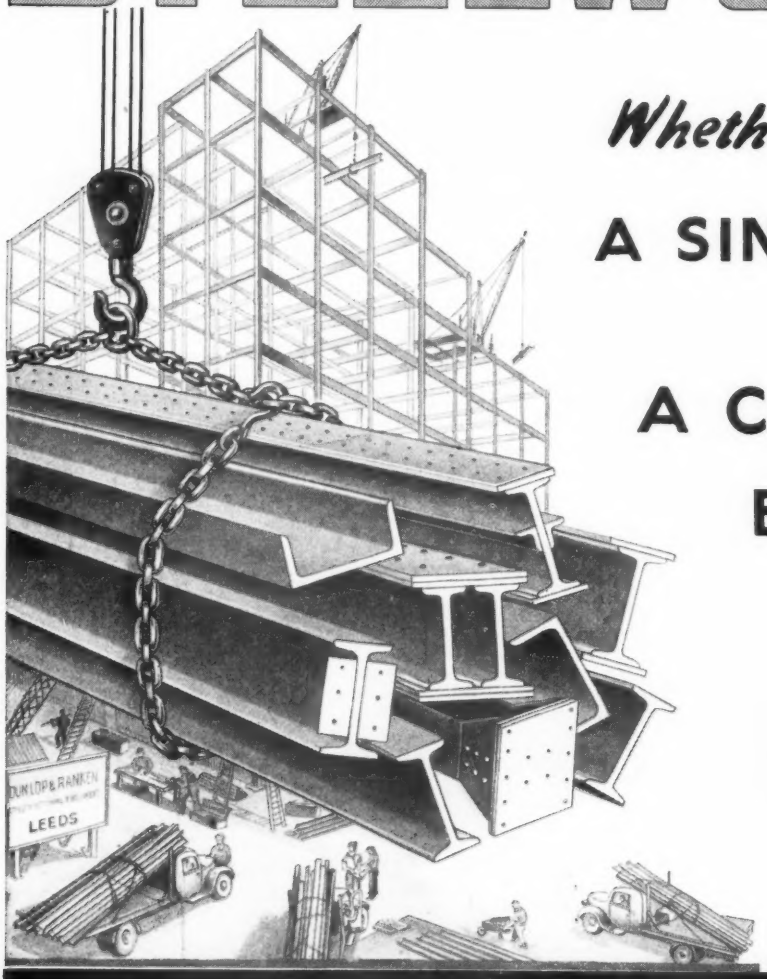

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THE JOURNAL OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS

THIRD SERIES VOL 54 NUMBER 12 : SEPTEMBER 1947 : 66 PORTLAND PLACE LONDON W1 : TWO SHILLINGS & SIXPENCE

533 EDITORIAL

535 THEATRE AT UTRECHT BY DUDOK

542 TOWN AND COUNTRY PLANNING SUMMER SCHOOL

548 SWEDISH ARCHITECTURE IN 1946: PART IV—SOME SWEDISH SCHOOLS

557 REVIEW OF CONSTRUCTION AND MATERIALS

559 DISTINCTION IN THESIS

565 ENTERPRISE SCOTLAND

566 PRACTICE NOTES

567 MODERN FIXING TECHNIQUE

569 CORRESPONDENCE

571 BOOK REVIEWS

573 SCHOOLS AND STUDENTS

574 NOTES AND NOTICES

575 OBITUARIES

576 MEMBERS' COLUMN

R.I.B.A. Session 1947-48

A return is being made to the pre-war practice of issuing to all members printed cards listing the General meetings of the Royal Institute, with the addition of the lectures organized by the Architectural Science Board. These cards will be enclosed in the October JOURNAL. Meanwhile members should note that the first general meeting will be held on Tuesday 11 November at 6 p.m. when the President will deliver his Inaugural Address and present the London Architecture Bronze Medal. The first A.S.B. lecture will be on Tuesday 14 October at 6 p.m. when Mr. Colin T. Penn [*A*] will lecture on 'Sources of Information for Architects.' Refreshments will be served before all meetings from 5.10 to 5.55 p.m.

Lectures on Post-War School Planning and Construction

The demands for tickets in connection with this course have been extremely gratifying and augur well for a good attendance at the lectures. Should any members find that they are unable to use their admission tickets, they are asked to return them to the R.I.B.A. so that they can be re-issued to others. No refund can, however,be made on buffet tickets already purchased. There are still a few buffet tickets available at an inclusive charge of 12*s*. for refreshments on both days. Members are reminded that, while it is hoped to issue a few tickets for individual meals on each day, this latter service is not guaranteed.

Building Industries National Council

The fourth Building Congress under the auspices of B.I.N.C. will be held at Folkestone on Tuesday and Wednesday, 18 and 19 November 1947. On this occasion it is not proposed to invite a Minister of the Crown to deliver an address, as the Council feel that the time has come for the industry and local authorities to decide what they themselves consider to be the best policy for the industry, rather than to hear the views of the Government. The Congress will enable the industry to consider in what directions improvement in organization and technique are desirable, and to refute unjustified criticisms recently levelled at it by the public.

The congress will be divided into four sessions as follows: (1) The present position:—what is being done, what are the obstacles to progress, what should be done to expedite progress. (2) What lies ahead:—future prospects of the industry, demand for building, availability of labour and materials. (3) Research and training:—research in the building industry, assimilation into practice of new technical developments, education and training for the industry. (4) Problems of organization:—the operation of the industry under conditions of full employment, report on placing and management of contracts, distribution and transport problems.

Each session will be opened by brief addresses by experts. Admission is by ticket, price one guinea, obtainable from the Building Industries National Council, 11 Weymouth Street, London, W.1.

The Royal Institution of Chartered Surveyors

By a recent Order in Council His Majesty The King has formally approved the consequential alterations in the professional designations of members of The Royal Institution of Chartered Surveyors. A Fellow of the Institution will henceforward use after his name the initials 'F.R.I.C.S.' and a Professional Associate the letters 'A.R.I.C.S.' Subject to the Institution's Bye-Laws each professional member may continue to style himself 'chartered surveyor'.

Swedish Architects visit England

Twenty-four Swedish architects and their wives and 12 students are visiting England on 18 September under the auspices of the Architectural Association. They will be welcomed at the A.A. on their arrival and, while in London, given accommodation by members. On the first day the party will go by steamer to Hampton Court where they will be shown round by Mr. Cecil Smith [*A*], the Ministry of Works architect responsible for the building. Next day they will depart by coach for a week's tour of the West of England under the guidance of Mr. R. Furneaux Jordan [*F*], staying at Salisbury, Bath, Stratford-on-Avon and Oxford, visiting notable examples of architecture such as Winchester Cathedral, Wells, Bradford-on-Avon, Stonehenge, Broadway, Burford and Blenheim. At the Shakespeare Memorial Theatre they will be shown round by Mr. J. C. Shepherd [*F*] and Mr. John Breakwell [*A*] and see a performance. On returning to London they will visit St. Paul's Cathedral under the guidance of Mr. E. R. Jarrett [*A*] and will be met by Mr. Godfrey Allen [*F*], the Cathedral Surveyor, afterwards visiting other parts of the City. In the afternoon they meet at the Soane Museum and afterwards will be conducted round the West End of London by Mr. John Summerson [*A*]. They will then be entertained to tea at the R.I.B.A. Next day they will go to Cambridge and to Impington Village College. Other functions are a visit to the Ministry of Town and Country Planning under Mr. Gordon Stephenson [*F*], a dinner at the A.A., a cocktail party at the Building Centre, a dinner by the British Council and luncheon by the Anglo-Swedish Society. British architects will consider this to be a very fine tour—and perhaps one which would be popular with ourselves in times when architectural holidays abroad are likely to be difficult!

Sir John Soane's Museum

The re-opening of the Soane Museum, which has been closed since 1940, is an event of considerable interest to architects. It was re-opened to the public on Tuesday 2 September and will in future be open, admission free, from 10 a.m. to 5 p.m. daily, Sundays excepted, and throughout August each year will be closed on Mondays.

Reconstruction work is still in progress and parts of the galleries will have to be closed for short periods from time to time. Nevertheless drawings and manuscripts are available for study at the above-mentioned hours or at other times by appointment. From October, lectures on the house and its contents will be given weekly on Wednesdays at 1.30 p.m. (half an hour) and Saturdays at 2.30 p.m. (one hour). Lectures to groups and societies will be given at other times by previous appointment.

Council of Industrial Design

Mr. Gordon Russell, C.B.E., M.C., R.D.I., has been appointed Director by the Council of Industrial Design to succeed Mr. S. C. Leslie. Mr. Russell is well known to architects as having developed the firm of Gordon Russell Ltd., furniture manufacturers and to have had extensive practical and executive experience of industrial design covering a wide range of commodities. He is the author of several books on industrial design subjects and has often broadcast. He is a member of many of the organizations in Great Britain which are concerned with industrial design.

Mr. John Gloag [*Hon. A*] has sent the following note on Mr. Gordon Russell's appointment:—

The first director of the Council of Industrial Design, Mr. S. C. Leslie, was an organizer with a practical knowledge of commerce, advertising and public relations, for he had been an executive in a large advertising agency before becoming a public relations officer. To his drive and organizing abilities must be attributed much of the success of the 'Britain Can Make It' exhibition; to him fell the complex and difficult task of getting the Council going as a body, though neither he nor that body ever succeeded in formulating a coherent and easily comprehended policy. 'What exactly is the Council supposed to *do*?' is a question that industrialists and distributors still ask; and the official answers are inclined to make art-proof men of affairs say: 'Is the Council really necessary?'

It is at this early, difficult but still promising point in its history as a State-sponsored body that its second director has been appointed, some months after Mr. Leslie had left to shoulder larger responsibilities. The new director is Gordon Russell, who for over a quarter of a century has been giving the breath of industrial life to that revival of interest in the designing and making of things which was initiated by William Morris, but which almost sank without a trace of influence upon contemporary life in the stagnant backwater of the arts and crafts movement. A designer and executant craftsman of exceptional ability, acquiring, not with facile ease but with the sympathy which springs from long apprenticeship alone, the mastery of materials which has distinguished all the great English craftsmen-designers, Gordon Russell never despised machinery or industrial methods. He built up an entirely new kind of furniture manufacturing business, with many ancilliary activities concerned with building. In collaboration with other enlightened manufacturers, he demonstrated that good design and mass production are not mutually exclusive, and the example of his work inspired countless experiments in the association of industrial designers and manufacturers for the making of all classes of consumer goods.

To have appointed a designer who was just a good designer to this responsible post would have been a mistake: however broad-minded he might have tried to be, he would almost certainly have seen one path only through the jungle of problems which surrounded him. But Gordon Russell, with his background of business and industrial experience, is too patient, wise and knowledgeable to use in all circumstances the comforting answer which the highbrow writers use almost as a liturgical formula: 'Design is Good for You!" As most of the vocal missionaries for good design are as incompatible with the normal British manufacturer as, say, Salvador Dali would be with Dr. Inge, the Council is to be congratulated on its good sense in choosing for its director a well-known man who is respected alike by manufacturers, distributors and designers. Gordon Russell can speak with authority: but, what is far more important, people everywhere are prepared to listen to him, for what he has to say is worth hearing and what he has done as a designer and an organizer has been splendidly worth doing.

A.B.S. Tombola

Gifts for the A.B.S. Tombola have started to come in, but the rate is disappointingly small. It will have to be accelerated if the figure of 300, achieved in 1938, is to be passed. No doubt many members, on reading the announcement in the August JOURNAL, were filled with good intentions but somehow have not made the effort to look among their possessions, select something and send it or bring it to the Secretary of the A.B.S. at 66 Portland Place. A picture, a book on architecture or the arts, china, glass, pottery, a clock or item of household equipment—something you could easily afford to present to your Benevolent Society—look it out today and pack it off. The earlier it is received the easier the task of the organizers.

Crawley New Town

Mr. A. G. Sheppard Fidler, Rome Scholar, B.Arch.(Livpl.) [*A*], has been appointed Chief Architect to the Crawley Development Corporation. Mr. Fidler has been Chief Architect to the Land Settlement Association and to Barclays Bank, Ltd. During the war he was Senior Technical Intelligence Officer of the Research and Experiments Department of the Ministry of Home Security.

The Operative Builder

Welcome to the recreated OPERATIVE BUILDER, the official journal of the National Federation of Building Trades Operatives. Starting as a quarterly in 1921 it ran until 1932 when it gave place to the BUILDING OPERATIVES' BULLETIN—a monthly statistical journal; this ceased publication in 1939.

The new journal is published bi-monthly, is of pocket size and priced 3*d*. No. 1 contains articles on statutory holiday payments, on items in the history of the Federation, on payment by results, on building apprenticeship and on the temporary housing programme. It strikes us as very good value for the operatives' money.

On the Cover

'A prefabricated housing site', especially drawn for the R.I.B.A. JOURNAL by Alan Lindsay.

R.I.B.A. Diary

WEDNESDAY 1 TO TUESDAY 7 OCTOBER. Exhibition of Designs by Students exempted from the R.I.B.A. Intermediate Examination.
MONDAY 13 TO SATURDAY 18 OCTOBER. Exhibition of Designs by Students exempted from the R.I.B.A. Final Examination.
TUESDAY 14 OCTOBER 6 P.M. A.S.B. Lecture '*Sources of Information for Architects*' by Colin T. Penn [*A*].
WEDNESDAY 22 TO TUESDAY 30 OCTOBER. Exhibition of Architects' Working Drawings.
THURSDAY 23 and FRIDAY 24 OCTOBER. Lecture Course on *Post War School Planning and Construction* and Exhibition.
WEDNESDAY 29 OCTOBER 6.30 P.M. Special Students' evening in connection with the Working Drawings Exhibition. Refreshments.
TUESDAY 11 NOVEMBER 6 P.M. Inaugural General Meeting. Address by the President. Presentation of the London Architecture Bronze Medal.

Above: the main front. Below: the block plan

Theatre at Utrecht

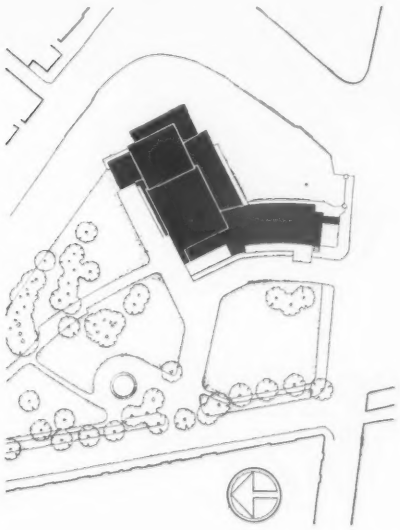
W. M. Dudok, Architect B.N.A., Royal Gold Medallist Hon. Corresponding Member R.I.B.A.

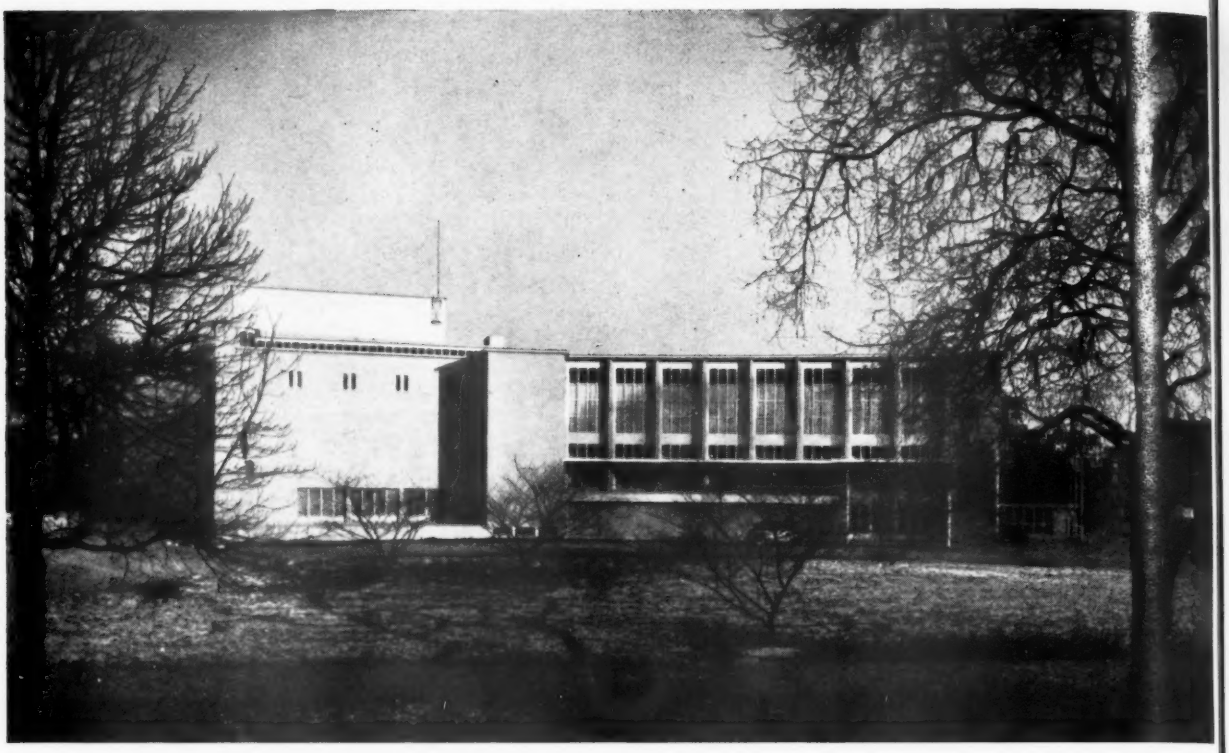
A BUILDING by Dudok is 'news' to the architectural professions of the world. Because it was completed after the German invasion, this theatre at Utrecht is not generally known outside Holland, and indeed first came to the knowledge of British architects when the Allied forces liberated the country. A serving member of the R.I.B.A., Mr. J. T. Redpath [*S*] brought this building to the notice of the Editor, who at once asked him to write an account of it.

When asked in a letter for some detailed technical notes, Dudok replied characteristically, 'I dislike writing about my own work, the more so as I must concentrate fully on the problems of today'. Nevertheless he gave some notes on materials, etc., which Mr. Redpath has incorporated in his description. He added: 'Many architects among the Royal Engineers came to see me and to tell me of their appreciation of this work. They may therefore be interested in seeing it reproduced in their own periodical, the R.I.B.A. JOURNAL'.

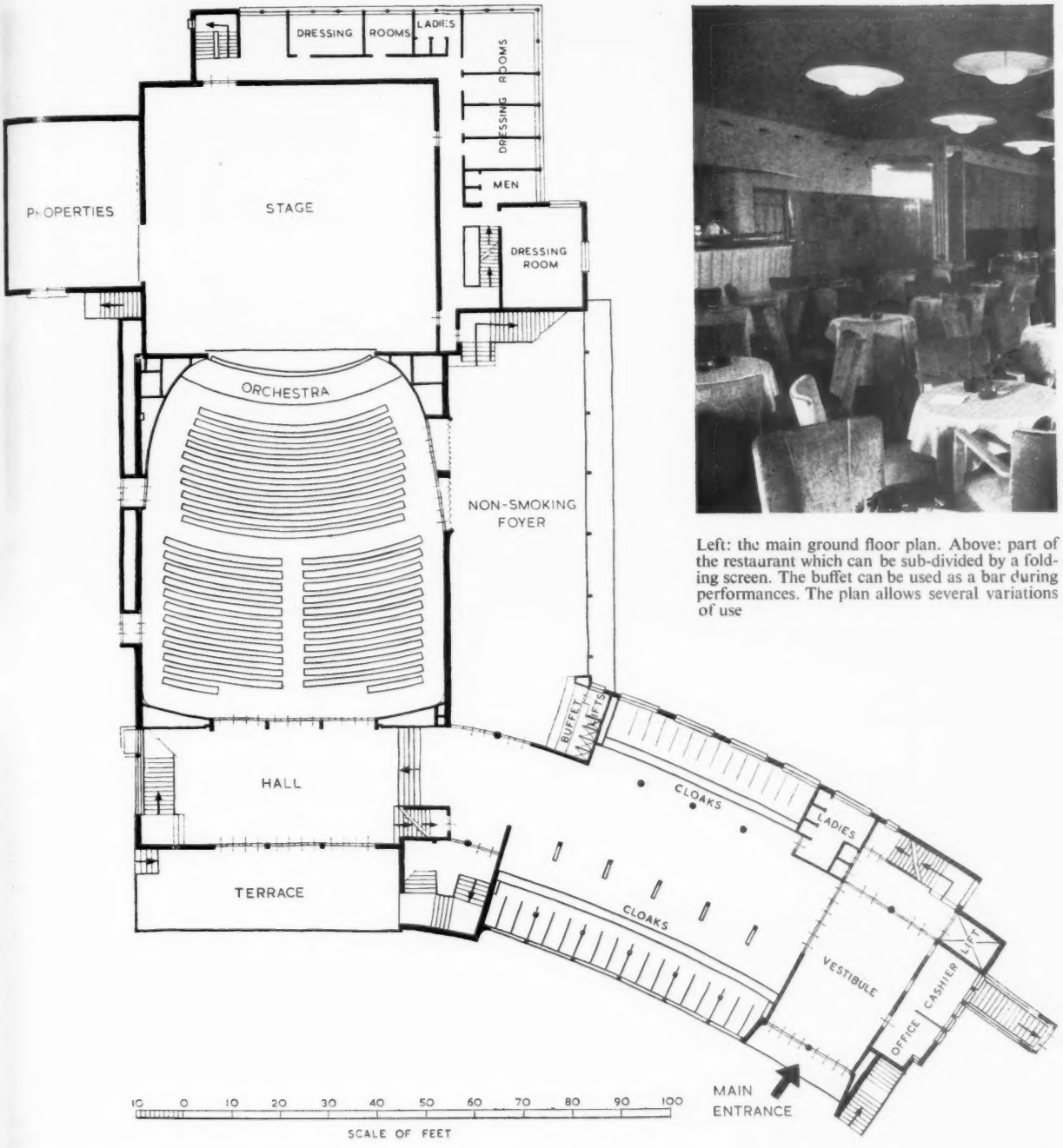
The following is Mr. Redpath's description:

The theatre is situated near the centre of Utrecht on the site of one of the many old fortresses. It was constructed for De Stadsschouwburg N.V. (Municipal Theatre Ltd.) and was commenced in 1939 and completed in 1941 under the Germans who requisitioned it as an officers' club on completion. M. Dudok states that materials were difficult to obtain, particularly the finishings, but as will be seen these are luxurious





Above: general view of the theatre seen across the gardens. The auditorium block is on the left, the main entrance on the right, the two being linked by a long cloaks hall with the restaurant and small hall above. Below is a side view across the old moat. The windows are those of the two superimposed foyers; the lower one has a balcony. The dressing room block is on the right



Left: the main ground floor plan. Above: part of the restaurant which can be sub-divided by a folding screen. The buffet can be used as a bar during performances. The plan allows several variations of use

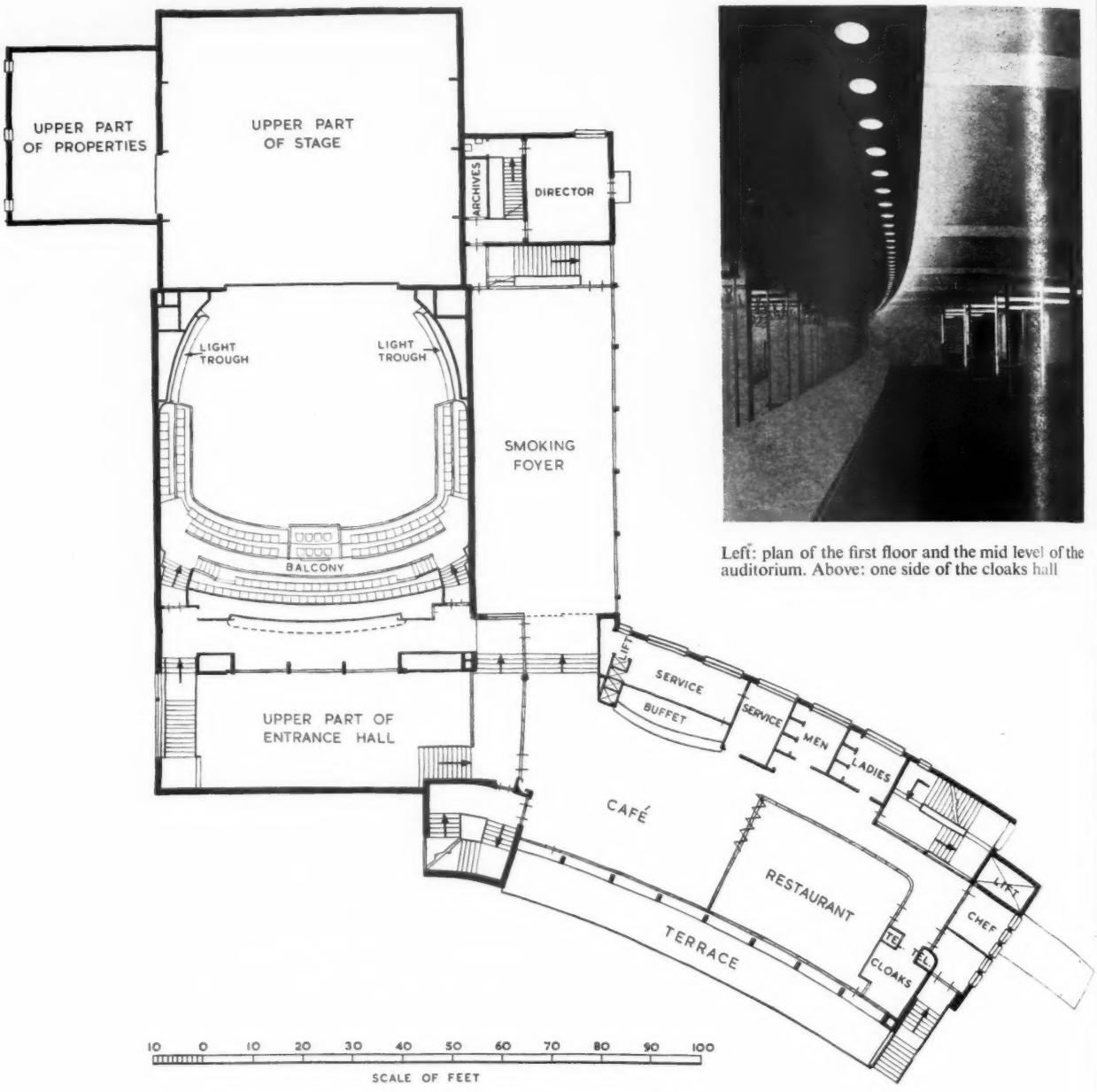
compared with British standards of today. The site has been well chosen and is so spacious that only one portion, the entrance end, adjoins the road. The walls on two sides rise out of the old moat while on the fourth side the open space has been laid out with flower beds and a small car park.

The building is thus very prominent from the normal Dutch street architecture which bounds the site on all sides, and it is not surprising that while a few of the British and Canadian forces on entering the town said 'Ah! Dudok' others promptly requisitioned it as an Allied officers' club. The whole building is symbolic of its purpose and the cream exterior tiling, the gilt figure and the flags make it quite the most attractive building in an attractive town.

The building is very compact and while its main rooms are a large auditorium for normal stage shows, a small hall for musical recitals and a restaurant, the plan is extremely versatile and can be used for any public function.

The large auditorium, seating 910 people, is served at ground level by an entrance loggia forming a draught space to a vestibule, with cloakroom facilities on either side, which opens into a foyer off which staircases rise to serve the balconies and small hall.

The cloakroom arrangements in the entrance vestibule are an extremely good piece



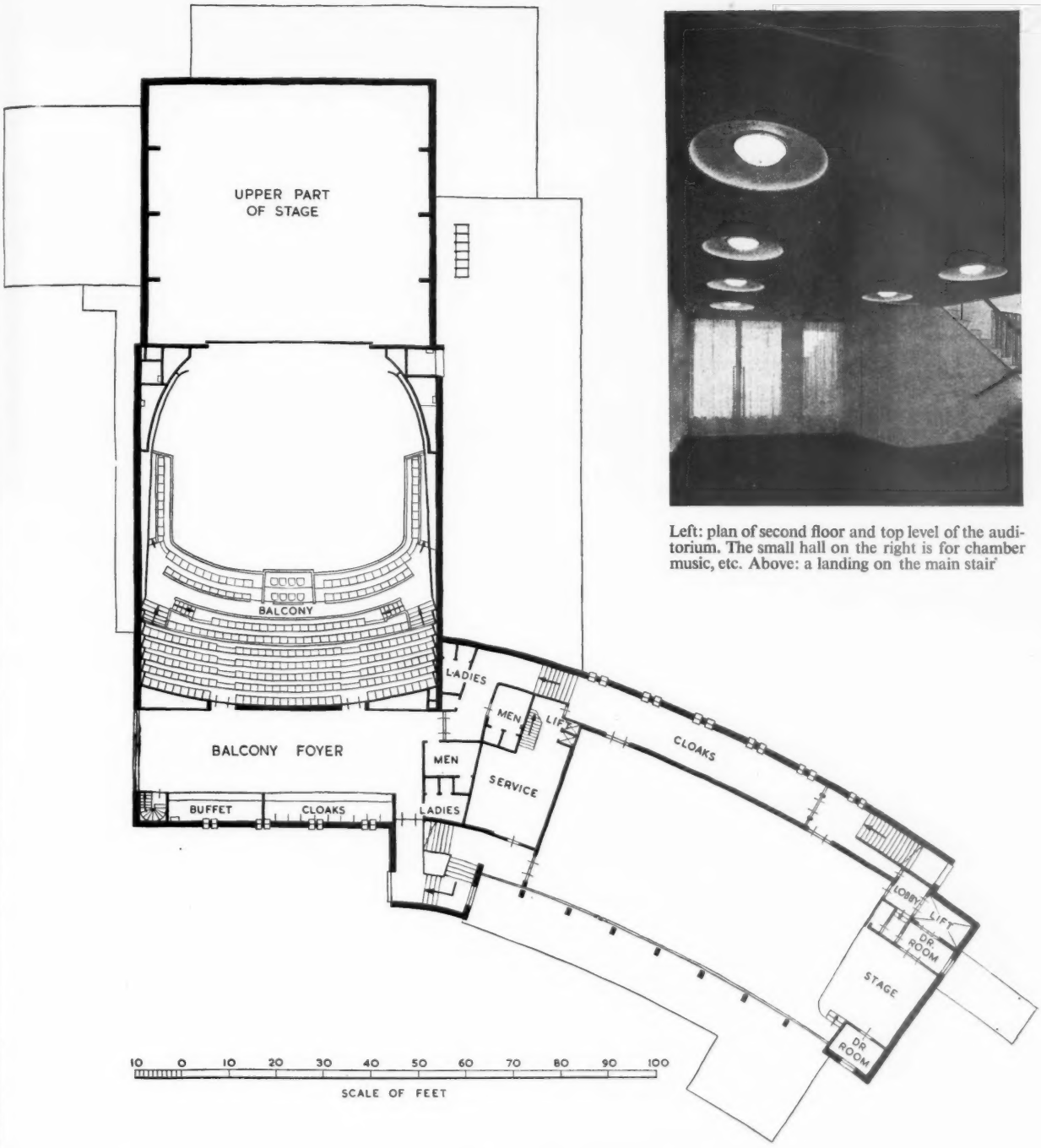
Left: plan of the first floor and the mid level of the auditorium. Above: one side of the cloaks hall

of planning giving the maximum amount of counter space and every facility for quick circulation; it is an arrangement which has been incorporated in many modern continental theatres. At the side of the auditorium and overlooking the water is another foyer for use during intervals and this has a small buffet in one corner.

The large auditorium is well proportioned. It has a spacious stage and a good arrangement of dressing rooms which open off a corridor running around two sides of the stage. The lower balcony is served by a small foyer which gives access to both the restaurant and a large foyer which again runs along the side of the auditorium and overlooks the water. This foyer can be used as an extension to the restaurant and has a dance floor.

The restaurant, which is open to the public daily, is normally served by waiters, but a buffet is provided which can be used as a bar in the evening. Part of the restaurant can be cut off by a folding partition, thereby providing a useful sitting-out place where drinks may be served when dining and dancing are in progress in the restaurant and the extension. Direct access to the restaurant is obtained by a staircase running up the side of the building beside the entrance to the theatre.

The small hall and the upper balcony which are on the second floor are reached by an independent staircase which opens off the junction between the cloak vestibule and foyer on the ground floor. This staircase also gives access, on the first floor, to the restaurant. The small hall, which seats 300, has the intimate atmosphere necessary for recitals by individuals, quartets, etc. This hall is served by a small foyer cloakroom on one side. The upper balcony has a



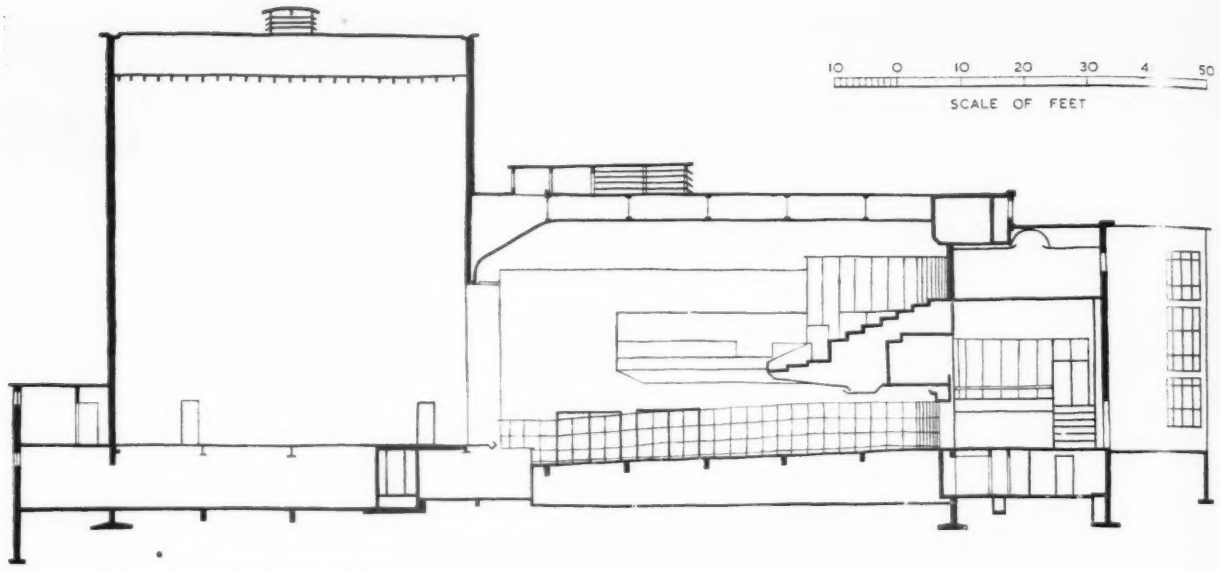
Left: plan of second floor and top level of the auditorium. The small hall on the right is for chamber music, etc. Above: a landing on the main stair

spacious foyer off which are a cloakroom and buffet.

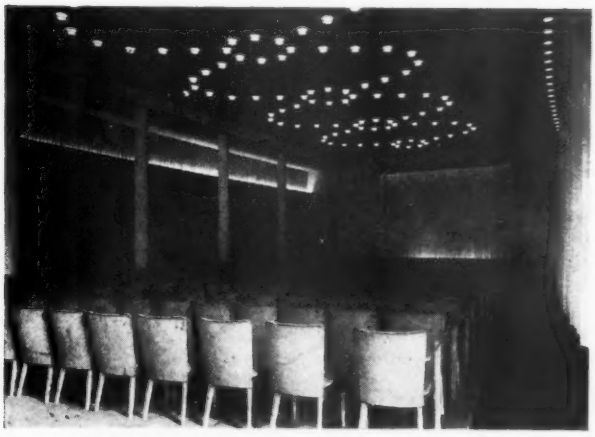
The external walls, which are steel framed, are constructed of brickwork and covered with cream-coloured tiles. The external walls of the stage form a well-proportioned tower; one interesting detail on this is the treatment of the rainwater downpipes which are brought boldly down the face of the building, are coloured with silver paint and form attractive features on the otherwise bare expanse of tiling.

The lower walls of the auditorium are lined with panelled padded white leather edged with gold; these panels cover the area normally covered by acoustic plaster. The walls above are cream coloured. The seats are covered with Chinese red velvet. The auditorium is lit principally by three horizontal lighting troughs running along the side and back walls.

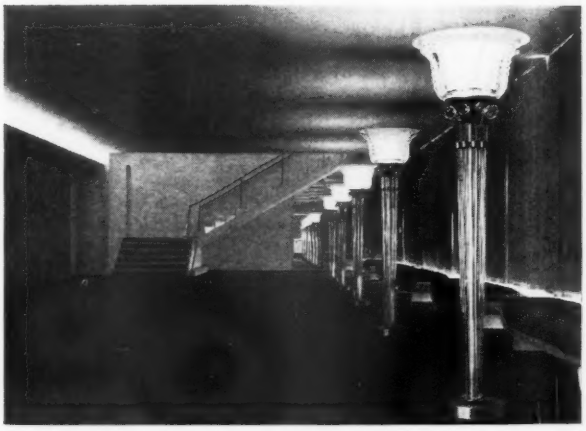
The small hall is panelled on two sides with light maple panelling. The continuous window running along the third side is draped with chamois leather coloured velvet curtains. The seats in this hall are covered with blue velvet.



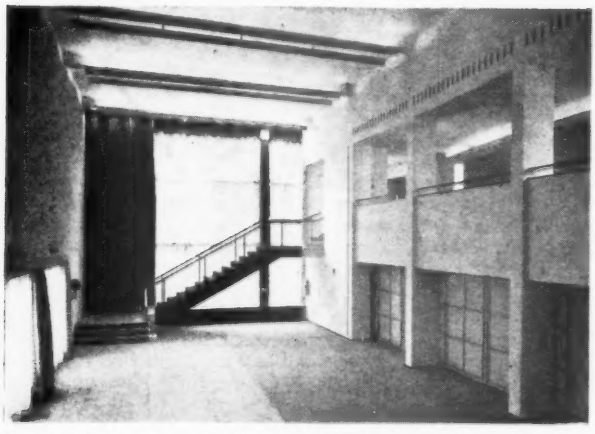
Section through the auditorium, stage and hall



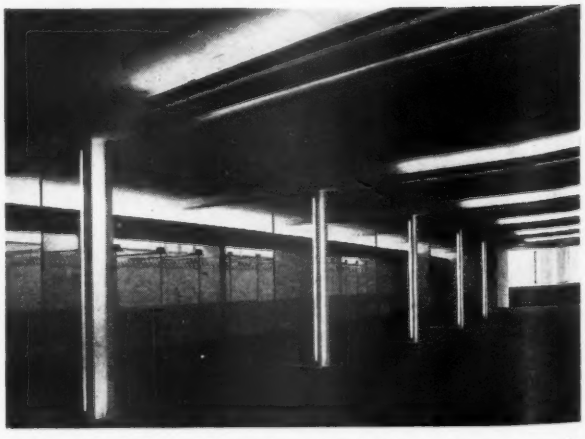
The small hall has an unusual scheme of lighting



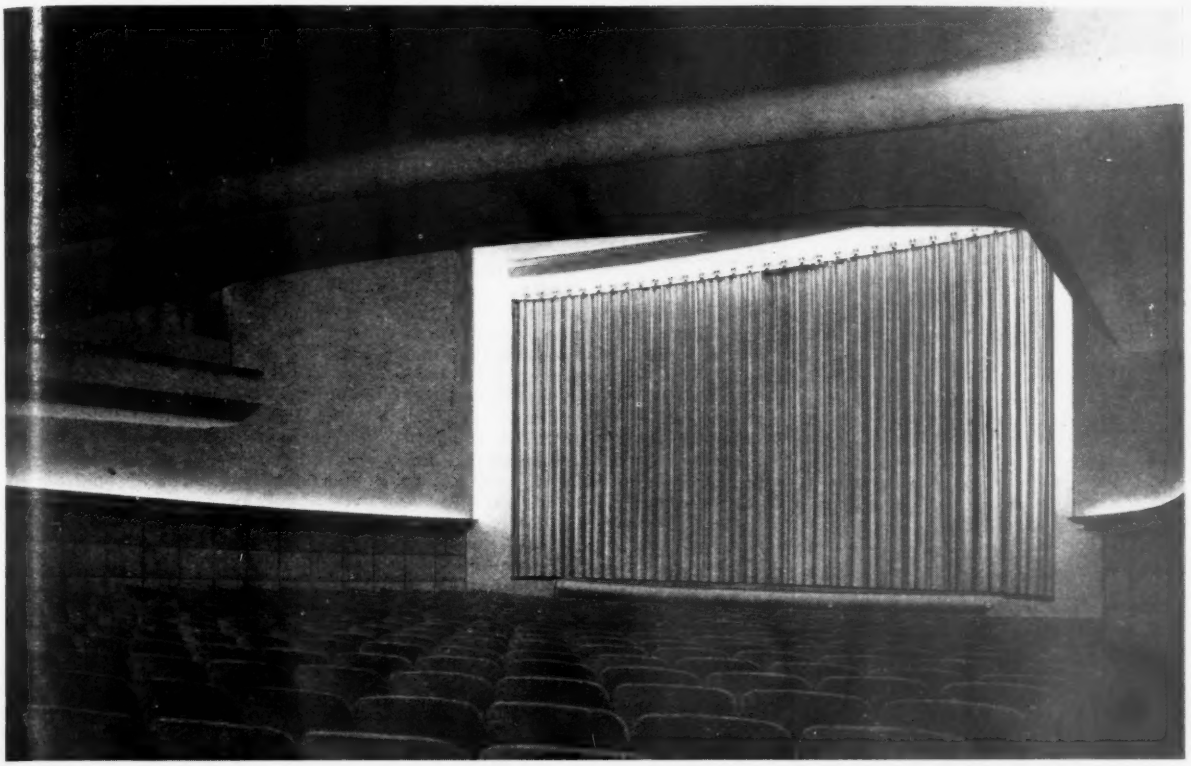
The non-smoking foyer next to the auditorium



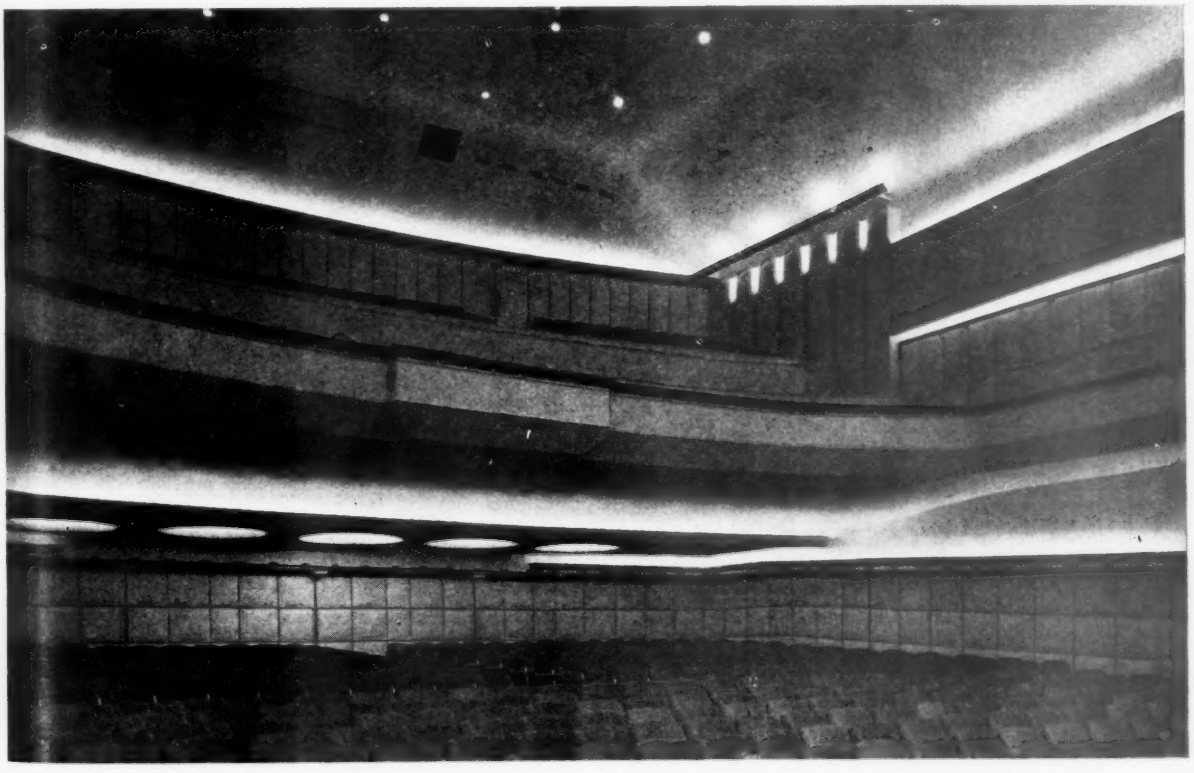
Entrance hall to the auditorium. The doors to the terrace are on the left. There are stairs to the balcony at both ends



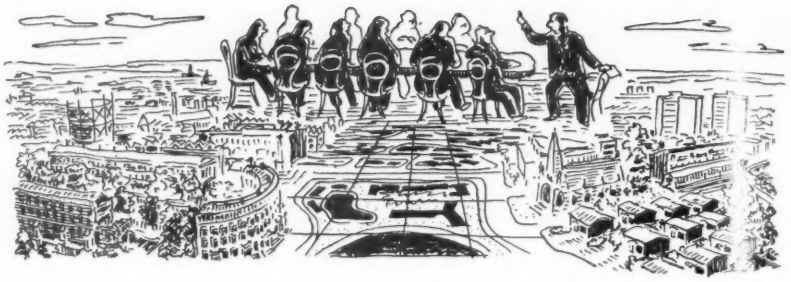
The long cloaks hall with counters on both sides which leads from the main entrance to the auditorium



Two views of the auditorium. The colours are cream walls, white leather panelling edged with gold, and Chinese red velvet upholstery



Town and Country Planning Summer School



THIS YEAR Reading was chosen for the Town and Country Planning Summer School held under the auspices of the Town Planning Institute; the Chairman for all sessions was Mr. G. L. Pepler [*Hon. A*]. Apart from the interesting papers, summarized below, the School ran several discussion groups and certain lighter items of instruction such as a tour from Reading to Windsor by boat and coach and a mock meeting of the 'Newtown' Development Corporation.

The Public Relations of Town Planning

In a paper entitled 'Planning and the Citizen', Mr. N. R. Tillett, Chairman of the Norwich City Town Planning Committee, discussed the whole field of public relations in regard to town planning, ranging from the elected representatives to the citizens themselves. It was idle, he said, to pretend that the general public yet understood or believed in the principles of town planning. New horizons had opened before the planners, and they and the technicians were fully aware of the significance of the new conception of planning and of the boundless opportunities before it. It must, however, be agreed that we had hardly yet begun seriously to tackle the task of public education in planning; much of the disturbance at Stevenage could probably have been avoided. Indeed, it was not too much to say that the success or failure of the planning adventure as a whole depended upon an adequate public relations policy. In a democracy the active participation of the citizens in planning was essential; if the citizen felt that the planners' plan was an imposition upon him, his reaction would be expressed in the local and national ballot-box. The problem was a vital one and needed immediate and urgent attention.

Mr. Tillett continued: 'The peculiar contribution of the British people to the technique of democratic government is the importance of the relationship between the amateur and the expert. It is a truism to repeat that the elected member of a national or a local assembly is responsible for Policy and the professional expert for Technique —or, in homely language, the one decides what to do and the other how to do it. But it is almost equally true that in practice it becomes extremely difficult to draw the line. The rise to power of progressive political parties has done a great deal to improve the nature and quality of national and local services; but much of that progress is equally due to the efforts of enlightened civil servants, town clerks and medical officers, sometimes with an unwilling elected membership tagging behind. It seems reasonable, therefore, to commence this discussion at the committee table, where professional planners at present most often come into contact with the elected representatives of the citizens. I can well understand it if they feel that their experiences there are not particularly encouraging. The resistance to progress in local government is nowhere more clearly seen than in the field of planning, for the reason that planning appears at first sight to interfere with some very deep-seated preconceptions.'

There were those who did not approve of party politics in local government, but he felt that party politics generally prevented a system, only too common in most countries, of re-electing chairmen of committees year after year until they died of senile decay. He felt it was true to say that, particularly in rural authorities, representatives often did not genuinely represent the interests of electors. The plain fact was that in country districts very few people wanted to serve on a local authority.

One of the advantages of the party system in local government was that it enabled the planning, together with other local services, to be discussed in an independent manner at the monthly or fortnightly party meeting. This meeting was far more than a place where the tactics of the party game were discussed and settled, or where leaders exercised the 'big stick' of party discipline. The meeting was the one place where the rank-and-file councillor got a real insight into the details of local government and where all the aspects of local services were discussed and elucidated.

Putting Planning Across

More important perhaps were the contacts between the parties represented on a local authority and the outside world. A Labour Party Group, for instance, would be linked to the Borough Labour Party or Trades and Labour Council by 'group delegates' who attended group meetings and reported back the proceedings. Similar, though less formal, channels of communication existed among the right-wing parties. There were also the monthly Ward meetings where opportunities were given to conscientious councillors to tell their constituents what they had been doing in the Town Hall. Nevertheless, in spite of the fact that planning was much in the air, the subject played a comparatively small part in the municipal election campaigns. There was evidence that it had very little reality for the electorate as a whole.

From time to time suggestions had been made that councillors ought to possess some sort of qualification, or possibly to pass an examination and/or test. Fortunately these schemes had never materialized. He felt the 'expert councillor' to be an intolerable nuisance. Doctors rarely made good chairmen of health committees, and builders were not the best people to preside over a housing committee; he fervently hoped that no town planner would ever become chairman of a town planning committee.

Mr. Tillett continued: 'More education in planning is hardly likely to effect any great change in the present generation of public representatives; it is important, therefore, that we should be looking at the generation that will fill the seats of our council chambers after the present members of our local authorities are dead and gone. It has been suggested that the schools should be roped into the field of planning endeavour; but it seems improbable that town and country planning, as such, is ever likely to find a place in an already overcrowded curriculum. The most that can reasonably be expected in this direction is a certain emphasis towards planning that can be given in studies of history or science. It should be possible to combine simple social surveys with studies in local history, for instance. It was sound sense to bring in the Boy Scouts to assist in the mapping of some counties for the Land Utilization Survey; the boys were given an interesting job to do and they were able to see for themselves that their work had concrete results. The co-operation of Youth Centres could also be invited in survey work; but it is important to realize that the interest of young men and women will not be fully aroused unless they feel that their work will be recognized, appreciated and acted on.'

Education for planning in these fields, however, was a long-term policy, and its results would not be apparent for many years. The chief problem was to find the medium for education in planning *now*. Perhaps one of the most helpful lines of attack lay through the voluntary bodies that were responsible for adult education in Britain, such as the extra-mural departments of the Universities and the Workers' Educational Association. Their classes usually covered what were called the 'liberal' studies, but up to the present town and country planning had occupied a lowly place in them. So far there had not been much demand for it, but very little attempt had been made to 'project' planning into

the environment of the ordinary citizen. This could be done in a number of ways by such means as talks, films, exhibitions and Press controversies.

It was of the utmost importance that the technique of presentation should be adapted to suit the idiosyncrasies of the different classes. What was suitable for a group of urban students was rarely suitable for a country class. It was a fairly general experience that the more remote a village, the more regular were the attendances and the higher the interest displayed; town classes had to compete successfully against other more superficial forms of entertainment. A good village class could sometimes be induced to undertake a local survey with very valuable results, as had been done at Binham. A course on town and country planning should have access to such extraneous aids as books, pamphlets and films; here the right approach was necessary; it was no earthly use flinging *The Culture of Cities* at the heads of the planning class and hoping it would sink in. Many of the official reports of plans published recently had been overstocked with calculations and statistical tables, tending to frighten away the average reader. The average uninformed reader had a healthy distrust of columns of figures, and it was far wiser to use popular books such as Sharp's *Anatomy of the Village* and Simon's *Rebuilding Britain*. The Labour Party's recent booklet *Town and Country Planning* had sold like wildfire at 2*d.* a copy. A well-written pamphlet was a first-rate method of putting planning across, and he suggested that the Ministry of Town and Country Planning might well undertake the task of publishing a series of attractive and well-designed booklets.

Exhibitions were invaluable, but many tended to be far above the head of the ordinary mortal who wandered disconsolately from one elaborate panel to the next until the pictures, diagrams and charts that had been so laboriously prepared ceased to convey anything to him at all.

After discussing films, Mr. Tillett went on to say that the technical officers of authorities ought to take a leading part in publicizing planning. The local Press could be useful if the editor was approached in advance to provide sufficient publicity. Generally, however, he felt that the formation of a 'Citizen's Planning Group', though not a new idea, was likely to prove a most vigorous force in public education. Given sufficient enthusiasm, there ought to be no real difficulty about putting planning across. It is true that a special technique was required, and it might be possible one day to appoint Planning Education Officers in certain areas who would be charged specifically with the duty of securing effective liaison between planners and planned. It was good to hear on the Second Reading of the Town and Country Planning Bill that the Minister was fully aware of this, and it was to be hoped that the implication of his statement had not been lost on his Department; our first requirement was an active public relations policy at Headquarters which employed, among other things, handbooks for the citizen and better planning films.

The Minister

In his official address on the third day, the Rt. Hon. Lewis Silkin, Minister of Town and Country Planning, began by saying that a year ago he had been able to tell them that the new towns were beginning, and in spite of a good deal of frustration—which had not yet finished—he was now able to report that considerable progress had been made, and that he hoped building operations on a small scale would actually start shortly on some of them. There had been one disappointment; progress as regards blitzed towns had not been all he had hoped. It was possibly the shadow of impending legislation that had slowed down activities. When the new bill came into operation the financial arrangements as regards redevelopment of blitzed towns would be much more satisfactory, and he proposed to try to make an intensive drive in the next few months to find out what were the reasons for past delays.

When the bill became law, the new local planning authorities, as well as the County Boroughs, would be faced with tasks of an unprecedented scale. There was first a question of making the surveys which the bill required preparatory to the submission of plans; these surveys he hoped would be on a scale never hitherto attempted except in a very few cases. Also, authorities would be required to submit an outline plan within three years and then to submit further plans filling in the details where necessary. Then the bill provided for periodical reviews of the plan, and local authorities would be expected to carry out a large measure of redevelopment, particularly in blighted areas.

It was obvious that this new approach and these new tasks would create an increased demand for technicians and planning administrators of all kinds, and above all, for persons of adequate quality. It was essential that the provision of skilled personnel in sufficient numbers and of a high quality and standing should keep pace with these increasing activities. A new approach to training was needed to correspond to the vast changes taking place in our conception and practice of planning.

What kind of personnel were they looking for, and with what technical and personal qualifications? He had no cut and dried answer. Indeed, he was looking for inspiration. He did, however, wish to stress the importance of authorities adequately equipping themselves at the earliest possible moment with the necessary planning staff.

Planning: a Combined Operation

He wished to emphasize above everything else that planning was a combined operation. It seemed unnecessary to say this, but it could not be repeated too often, and indeed, it had not been put fully into practice except in a very few areas. This combined operation began at Whitehall among his colleagues who were responsible for various aspects of national life such as health, housing, transport, agriculture, fuel and power, and the services. The requirements of these Ministries often conflicted in regard to the use of land, and he was fully aware of the necessity for the departments getting together. Next there was a combined operation between Whitehall and local government. The already strong friendly relations between his department, and the other departments, and the local authorities must be increased. He never thought that there were no possibilities of improvement, and he asked for instances where improvement could be made.

Equally necessary was combined operation between the various local government units. Planning powers were being transferred from district councils to county councils, but it would be a great mistake to lose the knowledge, experience and enthusiasm of the district councils in planning; he did not want to lose their services, and the Act provided for full consultation with district councils, both before the plan was prepared, and also when it had been approved; it provided for a certain degree of delegation, and they were at present working out the best methods of delegation of actual planning consent with the district councils.

There was also the combined operation between officials and elected representatives. Planning was a subject where the technical man generally talked, sometimes in too technical language, about something that the general man was supposed to know something about. Sometimes technical people professed to have an exclusive knowledge, and although planning was in many respects a highly technical matter, the layman was competent to express an opinion on such matters as shopping, travel to work, questions of open space, and the location of schools. The committee ought to be in the picture all the way through while the plan was actually in course of preparation; a first-class issue between the planner and the Committee ought never to be allowed to arise. The planner should carry his Committee as he went along, and the Committee should, of course, recognize that the planner was a technical person and an expert in certain directions and not try to do his technical job.

Finally, planning was a combined operation between the different departments of the local authority itself. The officials of a local authority were always supposed to be the best of friends, but he had occasionally heard grumbles. Whereas there generally was agreement, there were occasions of legitimate disagreement and they had not yet evolved an entirely satisfactory machine which acted quickly enough to resolve these differences. The realization of a need such as this was always a big step towards its solution.

The Planning Team

All this pointed to the need for a planning team, not a large one but comprising experts of many different kinds. A survey would be expected to cover such matters as estimated future populations, labour supply, transport requirements, mineral resources, quality of agricultural land, the general condition of farming, and the residential density including overcrowding and the quality of accommodation. He had seen some surveys where it had struck him that

the planner had not been altogether clear as to what information he really needed and what use he was going to make of it. The making of the survey was a skilled job in itself and for this would be needed geographers, economists, sociologists, statisticians, agriculturalists—indeed all types of professional people. With the carrying out of the plans, the architect, the engineer, the surveyor and the estate officer became more important.

As time went on more and more professions would have to come within the planning circle. He asked whether they ought to aim at producing a complete planner at all. Would it not be better to use the individual specialists under an able leader, giving them perhaps a short post-graduate course in planning to show them where they fitted into the team? It had hitherto been assumed that every technical person who entered the planning profession had to go through the full course, assimilating every aspect of planning. Would it not be possible (and desirable in view of the shortage of technicians) to short-circuit the process of training by taking members of different professions and merely giving them a short course so that they got the planning background, explaining where they came into the planning team?

In referring to leaders he knew he was treading on dangerous ground. He held that first and foremost the leader must be an able administrator; he must be a leader capable of getting his team to work with him and the best out of them. He must be of sufficient standing to be able to talk to his opposite numbers in adjoining authorities and government departments. He would not for a moment suggest that a technician could not be a good administrator, but it was not necessarily so. The leader must be a person of vision and imagination, capable of taking a long view, a man of culture and wide interests; he must also have enough technical knowledge to be able to appreciate fully the technical questions involved. He would like to see the distinction between the technician and the administrator very much blurred.

He thought it a mistake for the leader of the planning team to have other duties in his authority. He did not think the best leader of the planning team would be the borough engineer, the architect or the surveyor. These jobs were big enough on their own to absorb the full-time services of a highly competent and efficient person, and it would delegate planning to a minor capacity to assume that a person doing a big job in the borough could at the same time be responsible for planning.

Planning Under the New Code

Mr. J. W. R. Adams, County Planning Officer for Kent, in a paper entitled 'Planning Under the New Code', said that in discussing the effects of the new Act, Regulations, Directions, Circulars and Memoranda, he was giving his own opinions, and that he was approaching the subject largely from the point of view of administrative counties or joint boards.

Beginning by quoting Sir Raymond Unwin's principle that development should take place on a background of open space and that planners should not look for pieces of open space to preserve on a background of developed land, Mr. Adams said that, thanks largely to the untiring efforts of the Minister of Town and Country Planning and his Department, they were on the eve of a complete change in the law which would enable this principle to be applied in practice.

In the first stage they would presumably start with a small scale country or rural plan, which would show basically what Unwin called 'a background of open space' or what we later came to call 'the rural zone'. This plan must show the areas already developed and in which new development was to be permitted and would have to be based upon decision as to the future character and optimum size of each town or village.

In the second stage 6-in. scale maps would be used. These comparatively detailed maps would show business and cultural centres, industrial areas, principal open spaces, neighbourhood units, secondary schools and playing fields. It was safe to assume that the Minister would require a report with the plan at each stage and an indication in some convenient form of a time-table for development and re-development proposals. He felt it was essential in the interests of speed and economy that decisions should be reached as soon as possible upon what in many areas would be highly controversial issues as to future characters and sizes of the various communities, and such a decision should be reached before time was spent upon detailed planning.

In the third stage, plans to a scale of not less than 1 : 2,500 were to be prepared for development areas. There were two categories of detail plans. In the first would come those plans which showed areas in which development or re-development was to be carried out either by local authorities or by private enterprise on land acquired by the local authority. Such plans would be of all classes and types and would include the architect's plans and elevations for the buildings to be erected by the authority.

In the second category would be detailed plans where the authority desired to encourage or positively guide private development. These plans would presumably show the complete layout, use and density zoning, together with any special factors.

Development Control

Land which had hitherto been subject to interim development orders, or to the corresponding clauses in operative schemes, or Section 2 of the Ribbon Development Act, Mr. Adams thought, should for technical and administrative purposes, be grouped into:

(*a*) The control of development of any kind (including agricultural development) in rural areas except village or other development areas, the preservation of trees and woodlands, and the control of advertisements outside urban areas, as one group under the official title of 'landscape control'.

(*b*) The preservation of buildings of historic or architectural interest, the co-ordination of the control of the external appearance of buildings including specific control in important individual cases, and indeed all three-dimensional aspects of development control as a second group under the unofficial title of 'architectural control'.

(*c*) All other control of development would be comprised in the third group.

Organization and Staffing

He agreed with the Minister that the preparation of Development Plans should be carried out by teams comprising specialists in various branches of the art and science of town and country planning. Members of the team must be concerned to some extent with the control of development but should be sufficiently freed from it to be able to have time to think and plan. Some measure of decentralization by delegation to district councils or area committees would be necessary in the case of the larger planning areas. Offices should be conveniently placed throughout an area where intending developers and other enquirers could receive immediate advice and meet a senior officer. Certain items should, however, be dealt with centrally because of the potential liability for compensation, these included such items as preservation of trees and woodlands, preservation of historic buildings, control of advertisements and such things as surface mineral working. Survey and research work could not suitably be decentralized.

He was in favour of the system of area sub-committees which might play an important part in the formulation of detailed plans but would primarily deal with development control. Though they should not be allowed to permit any development which would be in conflict with the plan being prepared by the central committee or in conflict with such standards and principles as the local planning authority was endeavouring to maintain. This meant that certain types of case would have to be sent to the central committee for decision if the sub-committee disagreed with the officer's advice, but in other cases of purely local concern the sub-committee should be free to reach a final decision.

As regards staffing, he suggested that the planning team should comprise, in addition to the leader and his deputy, one specialist in each branch of the art and science of town and country planning, and in the case of large units additional officers, each specialising in a geographical sense in relation to the planning unit. More decentralization might be expedient, at least for development control, which would involve the setting up of branch offices. Mr. Adams then described the system which he was recommending to his own county authority. On the question of qualification, it was obvious that the architectural specialist must have a basic training as an architect, and training as a landscape architect would be an advantage in the case of the landscape specialist. The highway engineer had an important part to play. A civil engineer and a chartered surveyor were also necessary. He

agreed with the Minister that the leader had to be a 'good captain and a bit of a diplomat'.

Finally, what were the responsibilities of local government? He felt that, as far as town and country planning was concerned, this new planning code would be local government's last chance. If the new planning authorities failed to make good use of this opportunity, those who desired to vest these functions entirely in the central government would seize their opportunity. He felt that such a wholesale transfer would be a tragedy.

Survey and Research

In a paper entitled 'Survey and Research', Mr. W. L. Waide, A.M.T.P.I., first asked what was meant by 'survey'. The Domesday Book had been an admirable example. It was a detailed investigation into population, ownerships and property values of the whole country. Its immediate purpose was the preparation of an assessment list for taxation purposes, a task successfully accomplished. Its long-term implications, however, had been very considerable, and there was much to learn from it. It represented a perfect example of survey technique. For instance, it was known exactly beforehand what was required, it was carried out to a standard formula, the material was vouched for by local juries for each area, the whole procedure was completed in nine months and was presented in a simple and durable form.

The Americans, lacking this sort of background, might be excused, he said, a certain amount of experiment and he quoted an amusing example of a survey into personal habits.

He was quite sure that the Minister when discussing surveys on the occasion of the introduction of the bill had had quite a different sort of survey in mind to this. The Minister was, in fact, accepting the pleas which had been made from year to year at meetings of the Summer School, in published works and elsewhere, that planning decisions should only be made on the basis of ascertained facts of undoubted authenticity. They were therefore now faced at this school with the problem of justifying their theories and translating into more precise form what they really meant.

After discussing the great change in Government responsibility and organization which had occurred since the end of the first world war, Mr. Waide said he thought that the relationship between survey and planning and planning administration should be clearly understood. Like the Government, they were indivisible, but he suggested that more harm had been done to the planning movement by the production of over-elaborate and occasionally unnecessary surveys than by any other factor.

The Levels of Planning

Mr. Waide then discussed the six levels at which planning would have to be considered, and for this purpose circulated a chart which formed the main basis of his paper. We have not space in which to reproduce this chart but can say that the levels discussed were the National Level, the Regional Level, the County Level, the District Level, the Local Level, and the Detailed Level.

Decisions regarding all work on basic population forecasts, general policy regarding distribution of population, the location of new towns, and the location of industry would have to be made at the National Level. It would be the duty of the Regional Level to interpret the national policy in relation to a particular part of the country in respect of such matters as the detailed location of industry, housing standards, Service requirements, and National Park and holiday needs, local population targets, etc., so that the detailed planning could be based on these forecasts. At the Regional level also would be given guidance to all new and expanding industries. The responsibility, therefore, at the County level would be primarily one of interpretation of Regional policy, while District and Local levels would be chiefly concerned with the location of sites.

The purpose of a survey was first to prepare a report for submission to the Minister and it was to be assumed that examination of the outline plan by his Department would be partly based on the interpretation of the survey material. This material, however, was of equal importance in the day-to-day administration of a planning department which could only operate efficiently if it had available the current information respecting the whole of the area. However, the planning department had already become in most of the authorities the centre of information for all local authority activities and was being increasingly drawn upon by outside agencies.

There was a further important use of survey, not yet fully developed, namely, the assessment of standards for all physical planning requirements. Admittedly, many standards had already been agreed, but there were many others which had not yet been set and could only be arrived at after a detailed study of the position in a number of existing towns. This was, in fact, basic research.

Studying Change

After discussing the responsibilities of the various levels regarding survey, Mr. Waide said he wished to draw the attention of the School to another aspect of survey which, as time went on, would become an aspect of special importance, namely, the recording of change. At present, survey recorded at a given moment the rigid form of town structure, the type and condition of housing, the location of industry and business areas, open spaces and the other aspects of town life.

He said that he would like to see the production of an annual or biennial report by a town-planning department which could include an analytical enquiry into the changes that were taking place during that period. It was common knowledge that officers who were intimately concerned with the development of a town often failed to appreciate quite fundamental changes that were taking place.

The Functions of Communities

He wished to draw special attention to what he entitled 'the Community Pattern'. There existed a very definite and deep-rooted functional relationship between all the various types of communities from the hamlet to the village, market town, country town, to the regional centres and the national capital. Each community had a special part to play, a part which it had been playing for many centuries; it was of importance that the planning survey should analyse this community structure so that the inter-relationship of the various communities could be clearly seen and assessed. From it one could ascertain the extent to which each town exerted a sphere of influence over the surrounding countryside and for what purpose. The spheres of influence of these towns transcended local government boundaries.

Mobile Survey Teams

Mr. Waide agreed with other speakers that survey work should be undertaken by a team working independently, and that the members of it should be relieved of administrative responsibility and allowed to devote the whole of their time to the work. The team of a County Borough or Joint Board presented no difficulties. The County however was a different proposition. He thought that survey technique would become highly specialized, and according to the experience of the officer, so would the speed vary with which the work would be accomplished. Field experience would play an important part, and there was a case for the County to organize its survey work so that a mobile team would operate from the headquarters for the purpose of routine detailed surveys required at Local and District levels. It was essential, however, that there should be for each area one or more permanent survey officers to secure continuity and for the purpose of interpretation.

Third Dimension in Town Planning

Mr. D. E. E. Gibson [*A*], Chief Architect and Chief Town Planning Officer of Coventry, said that suggestions had been made at the last Summer School at Durham that more thought should be given to the subject of the third dimension in town planning. It had been said at the Durham School that however the surveys and zoning might be carried out, a town could still be the dullest place on earth. Conversely, however defective the planning might have been, or even with no planning at all, a town or village was sometimes still an interesting place to live in.

The object of third dimensional planning, above all else, was to obtain a convenient and pleasing surrounding in which to live. It concerned everybody, all shades of opinion, occupation, ages and education; and it was very difficult to please everybody. Time was pressing; some towns had already received their declaratory orders.

'There is a general feeling among the public', Mr. Gibson continued, 'that the people of the past built more beautifully than the people of today. They will prob-

ably refer to Bath and the Cotswold villages in support of this view. The feeling is easily understood if one looks at the vulgar lettering and name plates, the neon signs, lamp standards, and chain stores which have almost become part of the generally expected scene of today. Even in the countryside there are too many recent houses built to the requirements of uncultured and selfish owners, and it is easy, in retrospect, to attribute a greater value than we ought to the simple old developments of town and country. From these examples it appeared to be so obvious that what was required was an insistence upon the use of similar materials, and style of building, to the old. This outlook resulted in Ye Olde Tea Houses at Chester, Knutsford and elsewhere. In Coventry we have Ye Olde Timothy Whites and Ye Olde Prudential Buildings—large steel framed and reinforced concrete structures, several stories high—clothed in a rather badly fitting half-timbered skin, having balconies with no visible means of access, but which was nevertheless able to accommodate financial interests which demanded large plate glass show-windows on the ground floor. Incidentally it has one virtue for planners, namely the spiral brick chimneys which cannot smoke, having no flues. Unhappily Hitler's bombs took one building away, but the other remains fortunately, to remind us of the folly of that sort of thing, persecuting all the time the pleasant little row of mediæval houses, for whose embellishment it was misguidedly intended.

'My reference to specific examples was intended to show that the use of a uniform building style, does not of necessity by itself achieve satisfactory results. The same applies to materials. Let us take the Cotswolds as an example, for there are many instances in that district, of new housing schemes having been built with materials similar in colour to the native stone, and yet in many of these cases the resulting buildings look foreign to the district. In my opinion it is generally because the normal 18 to 20 ft. roof span has not been adhered to, or that the scale is wrong, or that the traditional grouping has been disregarded in favour of pairs of semi-detached houses.

'And yet there is no reason why new developments and new building techniques should not fit in well with the old ones, so long as they are done with feeling and an understanding of design. One need only look at some of our own cathedrals to see where it has been done. I remember walking up a pleasant street in the town of Bonn in Germany—the street leading from the station to the town centre. The street consisted of large houses, pleasant in character, and in the main about 100 years old. On walking up the street, however, one could see that in a few cases the houses had been replaced by very new ones enjoying contemporary building technique and details, but there was no unpleasant contrast between the new houses and the old.

The Defects of Classic Elevational Control

'By the beginning of this century the faults and the good examples of the past, had led architects and planners to accept a general set of rules. Rules based on examples such as the Italian and French Renaissance towns, and giving a key for the design of squares, terraces, crescents and vistas. These rules covered also such questions as string courses, cornice heights, axes, focal points and materials. Examples of the results may be seen at Bath, Edinburgh, and more recently Aldwych with its Bush House, or Regent Street with its grouped monumental windows, two of which may serve to light a board room, and a third to light an awkwardly placed and very high lavatory.

'These early planners could not always have paid a great deal of attention to the individual occupier, and I have heard it said of this sort of planning that it's like a game of chess—all very fine for the players but a bit rough on the pawns.

'I think there is little doubt that the Georgian Period gave this country some of the best developments which it has had. Some of the pre-Georgian and even the Mediæval development was also good. The distant past, however, and the recent past, was not always good. One need only look at some of the plans of the old City of London to see the horrors of unfettered individualism and *laissez-faire*.

'I think it would be fair comment to say that our towns in the past have generally been a true reflection of the social conditions maintaining at the time of building. One of the most significant changes is that today people often build for letting or selling to others, and not for their own use or for the use of their successors. Even bigger influences are the big chain stores, and the modern uses of advertising with its signs and neon lights, and crude lettering.

The Source of Design Ideas

'There has also been a change in the origin of good ideas. Originally it was the travelled and cultured of the "Grand Tour" who gave England her best. In the recent past it has been the middle man, each for himself, and we know the result, which fortunately led to the new legislation (if it is not too late). But now it is the turn of the People to care for themselves and to plan "by themselves for themselves" and we and our children shall see the result. It is our duty as planners to envisage the best conditions in which our art may flourish. The thing I view with apprehension, therefore, is the apparent lack of knowledge of the world's possibilities among those who have new responsibilities as leaders and formers of policy. The Ministry of Town and Country Planning and the whole nation would profit enormously if there were a statutory obligation upon Local Authorities to send members of their Planning Committee—about three each year, or say in a six-yearly rota, to visit different countries, and to study different subjects. . . . "And what should they know of England, who only England know?". It seems to me more appropriate to save money on staff at the Ministry, occupied in controlling, and to spend money, at the source, where the plans are being prepared—get them right at the beginning.

'The methods employed in different countries to achieve pleasant towns vary considerably. In Sweden for example, eaves projection, roof pitch, gable or hip ends to roofs, direction of blocks for contours, and roof line, are often laid down in planning schemes, but I do not know of any country where the necessary powers are greater than in England. Yet there are a number of countries where a better job has been done—Sweden and Switzerland to mention only two. In my opinion this shows that even more important than powers, is the question of a general high level of good taste and good education—education in the true sense of the word. And it is in the main the public who might rightly accept criticism in this respect. A nation which permitted the bulk of its building to be undertaken without architectural supervision, only deserves what it has had. To a lesser degree one can sometimes criticize my own profession, which occasionally prefers to design buildings which vulgarly call for attention themselves, rather than taking their place in an unassuming manner with their fellow buildings in a street. In a country in whose schools Art in matriculation is the exception, and where Architecture only means the difference between a Norman and a Gothic window, how can one expect intelligent understanding and comment on the architecture of today?

'There is often a dislike or prejudice against unfamiliar art forms, whether they be buildings or painting or music, though the B.B.C. has advanced the public taste by a few centuries in a few years, and many who once called classical music "highbrow" now whistle it at work. The same can be said of the new building materials and techniques and design of today. Some people still dislike and mistrust it, and not understanding, sometimes try and force it into old clothes. The case of Coventry Cathedral is one in point.

'In this particular respect the proposed New Towns may do a lot of good. What is needed in England is to see some examples of towns really well planned, designed and built in every detail, as an example that all may see, and quote, and aspire to. But this won't result if temporary buildings are used, and if wartime austerity is continued. I therefore make a plea that with all the building difficulties that exist, the New Towns at any rate, or one of them at least, be given a real chance.

Control of Design Today

'Today new rules for planning are needed to suit our new requirements. The old ones still hold good in some respects, but they need adapting to present-day needs. The scale of space and speed is quite different today. The scale of today is that of the dual carriageway road and the turning space for a bus, and the wider footpaths for the greater crowds in our towns. And the consequent larger open areas need a greater building height.

'Also we should try to preserve the feeling of a restful background by means of

grass and simple buildings, because today we have so many crowds and so much traffic in our towns. Contrast the Early Greek and Mediæval towns with their dynamic grouping of individual buildings to provide an exciting background. We need a more static quality today, except in quiet precincts where the movement of people is slow, and close and intimate. In such areas there should be plenty of interesting detail, sculpture and fountains which people can look at on foot, and not from quickly moving cars or buses.

'I think we should encourage a greater use of colour in our new buildings. It is a pity that we lost the tradition of colour in vogue in Mediæval times. Perhaps the atmospheric pollution of recent years has been the cause. If so, the advent of district heating and the need for burning fuel more efficiently in future may see its return. I would like to see the glory of the West front of Wells Cathedral in its full colour. Added emphasis can sometimes be obtained by the use of different colour and texture, and there are frequently points in a town where such attention is necessary.

'A greater variety in massing of buildings in towns and in housing schemes is needed to replace the usual average dull monotony. The probable cause has been the "twelve to the acre" uniformity, instead of keeping some parts more open, and having a greater density of buildings in other places. By grouping old people's bungalows next to high flats a great deal of contrast and interest in skyline can be obtained. If some of the houses can be built at right angles to the vehicular roads, then a feeling of space, in addition to the usual one along the streets, can be obtained.

'In many of the towns where the greatest amount of building may be expected, the land will be leasehold and owned by the local authority, so there will be the possibility of the sort of strong control which produced Wood's Bath and Nash's Regent Street, London. To me, one of the most important virtues of such an arrangement is the possibility, when fixing rentals, of obtaining the money from groups of building owners for the provision of joint amenities such as sculptures, fountains, flowers, car parks and lifts, and service ducts for district heating. Without these things, a town can only provide an existence, and not a living for its citizens. I am glad that we were able to start the rebuilding of Coventry with the provision and planting of flowers, and trees, and shrubs.

'For the purposes of control it seems to me that in central areas of towns there are two major types of problem. The first is in the area where the buildings are all of a kind, for example shops and offices, restaurants, cafés, and such buildings. It is usually possible in these cases to have buildings of fairly uniform floor and roof heights. The second problem is to be found in the area of a town where provision has been made for the siting of art galleries, libraries, law courts, swimming baths. Generally these buildings all require a good deal of space around them and they very often vary greatly in height one from the other. In these cases it often seems better to depend upon skyline and grouping effects and tree planting for a satisfactory result.'

Mr. Gibson then referred to planning for quiet. Considerable progress had been made recently in this science and a few useful, simple principles had emerged such as tree planting to act as a sound absorbent, the planning and placing of buildings which it was desired to keep quiet in the background. There was also the question of shadowing by tall building blocks. Much work had been done on this and in the recently published suggestions for the City of London there was a clear indication of points which should be borne in mind. By the use of the heliodon and useful simple block models it was possible to see what were the critical times of day at which any interference of adjoining building blocks might occur. He pleaded for a much greater use of the heliodon in town planning and said that one was used in his own department.

The Use of Models

He had also come to the conclusion that it was essential to have a model showing all proposed developments. This was useful both for the public who generally could not understand plans, for the developer and even for the designer himself. He thought the Ministry should insist upon a model being prepared before any major scheme of planning or redevelopment was considered. The scale of the model could vary according to what it was intended to show. A scale of 64 ft. to 1 in. was usually adequate for dealing with simple blocks to show heights and spacings but for detailed arrangements showing pavements, steps and slopes and the architectural details of buildings a scale of 24 ft. to 1 in. was about the smallest suitable. Models should be placed at high level and it was useful to provide a small periscope so that views at various points could be studied. An aeroplane view of a town was important but the view from the street should be an over-riding consideration. The model should be made in pieces so that the model of a projected building could be fitted into it to show its relationship to the adjoining buildings. He felt this question of models to be so important that he suggested the Ministry of Town and Country Planning should increase its present model section as a service to local authorities; this would be very helpful especially to the smaller authorities who would not normally carry staff competent to make models.

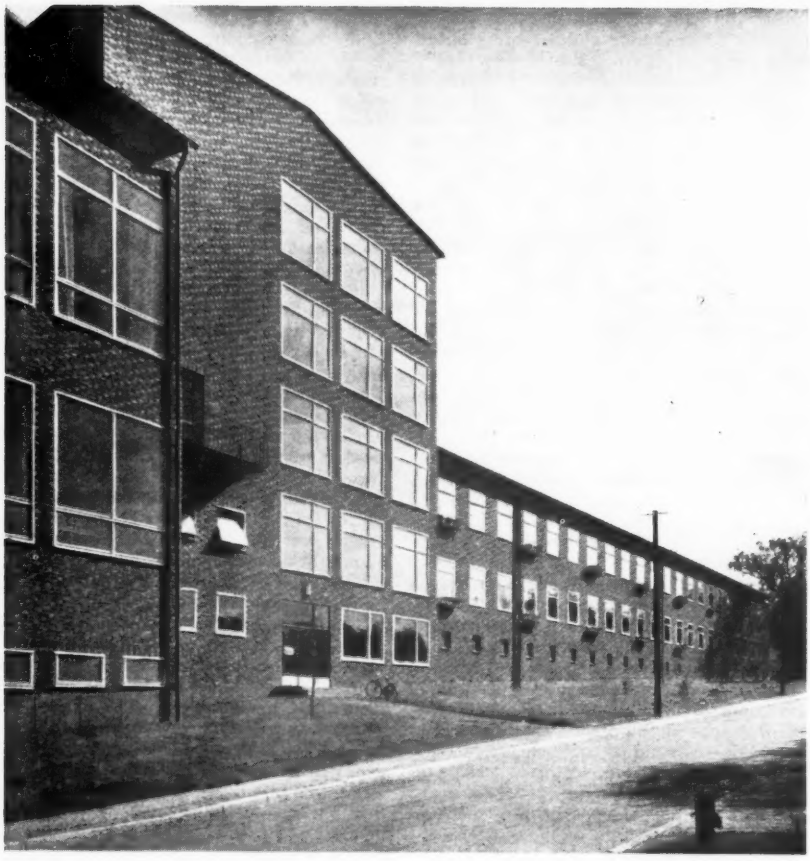
A Code of Control

On the subject of control Mr. Gibson said that the objects of any code of control should be to encourage the best and prevent the worst. The code should not be so rigid as to prevent variety in towns nor should it prevent good architects from doing what they wanted. It should however prevent indifferent or bad architects, or architects' bad clients, from putting up buildings either of poor design or not in harmony or accord with the general intentions of the planning scheme. Mr. Gibson outlined such a code beginning with a general history of planning and the aims and objects of control, continuing with the need for inspecting the local authority's model and discussing questions of material, colour and texture with the authority's architect before any design was commenced. Buildings should be properly faced on all sides and the roof design considered and shown on any drawing. No sham buildings belonging to periods of the past should be allowed. No external plumbing with the exception of rainwater pipes should be permitted. The outside painting should be considered in colour at the time of original building and should not be varied subsequently without the consent of the local authority. All buildings should be in scale within themselves and with one another. The design of neon signs should be carefully considered to see that colours of adjacent neon signs did not clash and that designs were part of the building. All street furniture such as lamp posts, telephone kiosks, bus shelters, etc., should be submitted for approval before being built. The submission of any block of buildings should be accompanied by heliodon photographs showing shadow interference.

Mr. Gibson continued: 'I do not think that it would be generally desirable or fair or likely to produce very brilliant towns, if we were to tackle the problem in the Regent Street manner, that is by drawing out complete elevations and tying developers almost to within a half inch of heights from string course to string course. I think it better to have a general conception of what is required and to allow a certain amount of freedom for individual initiative which will in no way hamper good designers but would simply prevent the less competent ones from injuring amenities'.

Finally, he said, the whole idea demanded that there should be a really competent architect in each local authority to administer control and to advise the authority. He thought that any practising architect submitting individual schemes had the right to discuss them with a member of his own profession. Also, it was important that the Planning Officer should live in the town all the time. He also had a feeling that the use of consultants was not likely to have the very best results unless backed up by competent permanent officials.

Drawings by Oliver Cox (S)

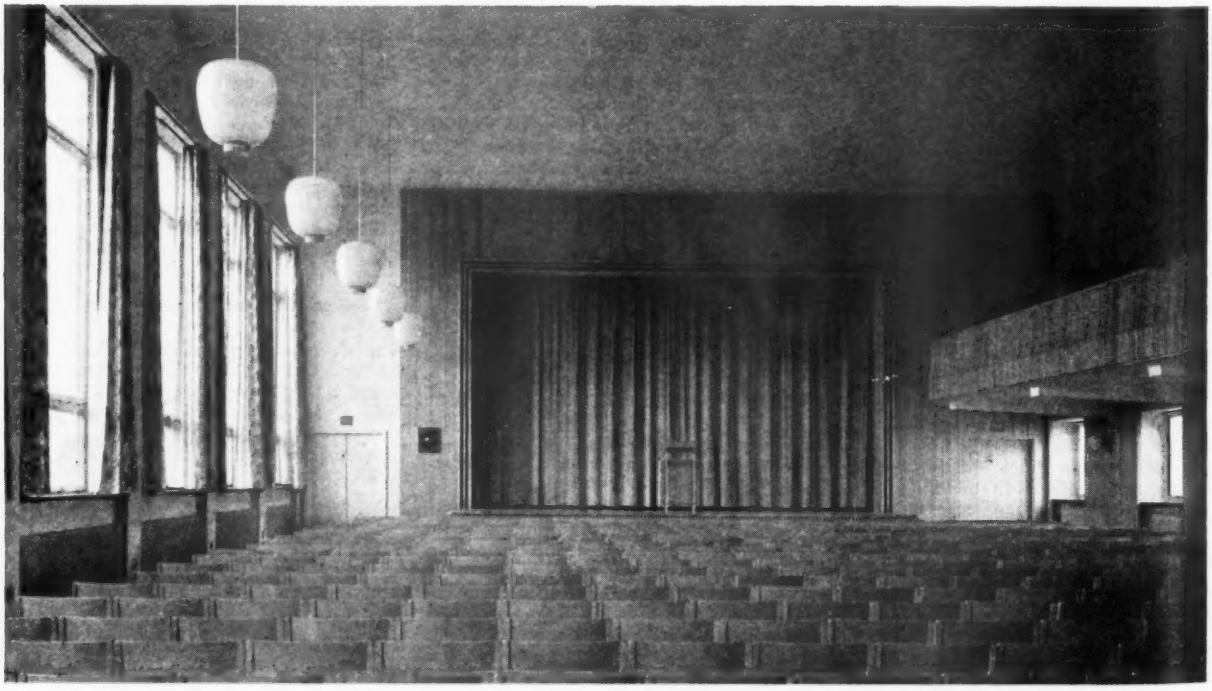


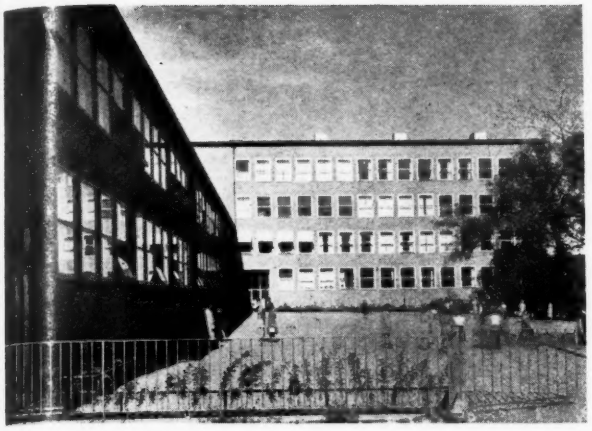
Swedish Architecture in 1946. Part IV

Some Recent Swedish Schools

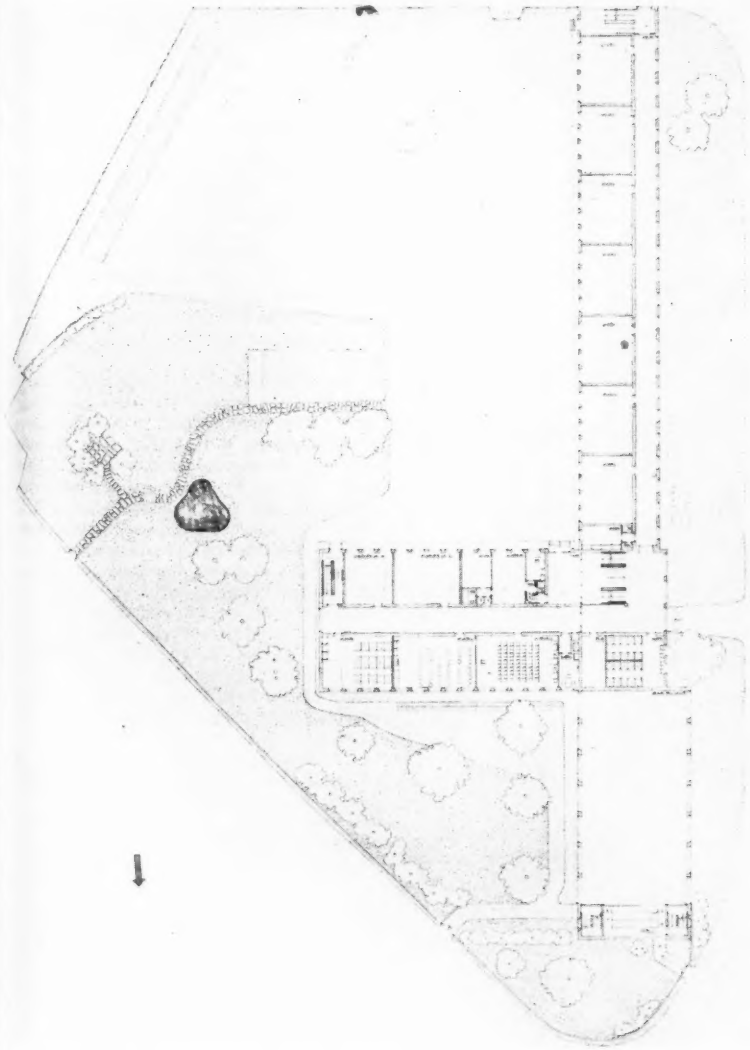
I KNEW nothing of Swedish regulations controlling the design and planning of schools, excepting what can be deduced by any architect from a study of plans and photographs or from an inspection of the buildings themselves. But obviously the Swedish authorities' views differ in two major respects from the British, and these have a pronounced effect on the design of the buildings. First, they do not attempt to provide the high standard of daylighting at which we aim (by such devices as 'all-glass' walls and clerestories on the inner sides of classrooms) and secondly, they have no hard-and-fast rules about orientation.

One rather wonders whether this is because the Swedes are behind us as regards the scientific study of daylighting but, knowing them to be highly skilled in technical matters, one has an uncomfortable feeling that we may be barking unnecessarily up a scientific tree. In fact, are their





The plans and photographs on these two pages are of the Girls' Secondary School at Ralambshov, Kungsholmen. Architect: Professor P. Hedqvist. Built in 1941 this building is typical of present-day school design in its good massing with flat pitched roofs, facing brickwork and absence of applied decorative detail



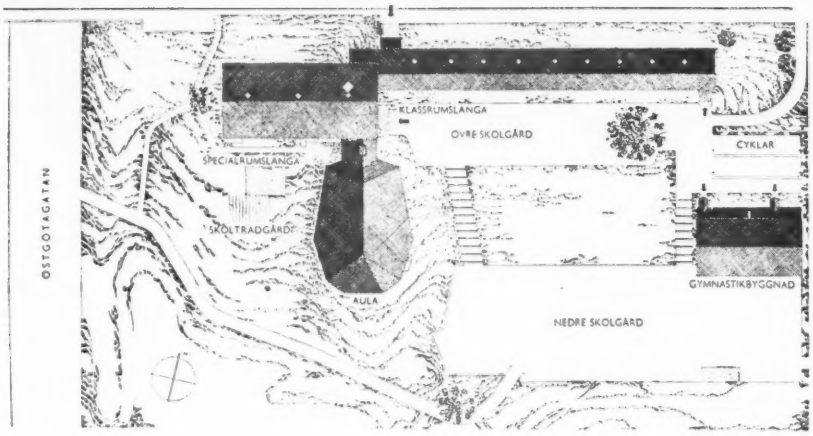
daylighting and insolation based on medical evidence regarding children's eyesight—or not?

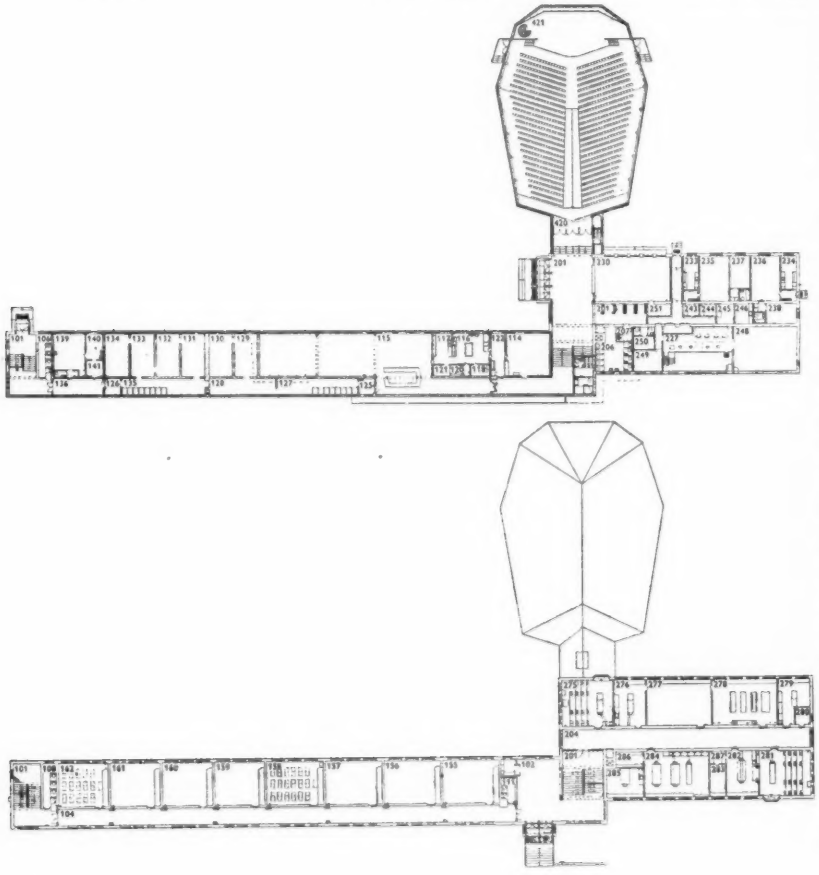
Whatever may be the cause, the result of these decisions (or lack of decision) is that the widely-spread single storey school building, typical of British practice, is replaced by a multi-storey structure and one which has a less restricted grouping of the principal elements. The plans reproduced here show a wide variety of plan groupings which appear as much to follow site contours as to seek good insolation. Even the open quadrangular plan, as in the Fredhäll school (page 553) is to be found. Such a plan, however, has an openness which is far removed from that of the tight quadrangular type which became obsolete in the inter-war years.

The typical irregular, rocky, tree-clad sites are not without an influence on the planning. Much of a site must remain irregular and rocky; Swedish architects cannot use every square yard of ground, as can British architects, for playground, playing field, school garden or flower bed. Moreover the building has to be so perched on its rocky bed that excessive excavation is avoided while reasonable floor levels are maintained inside the plan. It would not be easy to lay down the typical British single storey school on many of the sites shown here. The school illustrated on this page is rather exceptional in having a flat site.

Climate is another factor making for compactness in Swedish school planning. The British visitor mostly sees Sweden in its glorious summer and ignores the long dark winter months when the cold has to be kept out and all must be snug within. Therefore schools, like other buildings in Sweden tend to be contained within an insulated and warmed envelope; one is either inside in the warm or outside in the cold; there are no half-heated spaces; double doors and double-glazed windows prohibit draughty entrance halls, lobbies or linking corridors.

Apart from these pronounced differences in general layout and form, the principles of internal planning are much the same in the two countries, classroom sizes and space per pupil appearing to be practically identical in the two countries. Technical





departments, such as workshops and laboratories are also similar in size and equipment. In passing, it should be said that manual training is very highly developed in Sweden, particularly housewifery for the girls, woodwork and metalwork for the boys, and art training for all.

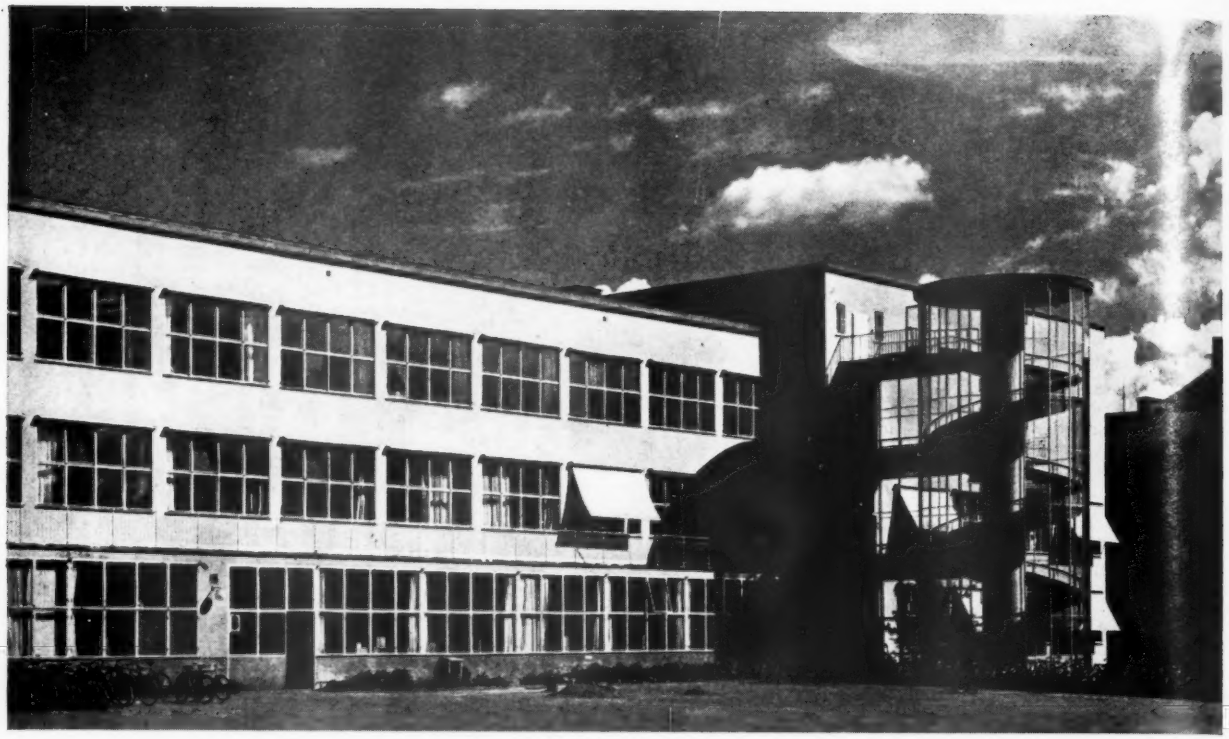
As is to be expected in the home of 'Swedish exercises' the gymnasium and open exercise areas play an important part. Two gymnasia are not uncommon and some schools have as many as four, often placed above a group of changing rooms in a semi-basement from which the pupils can reach any gymnasium by internal stairs. The placing of the gymnasia should be noted on the plans; they are sometimes detached at considerable distances from the main building which makes for quiet in the classrooms.

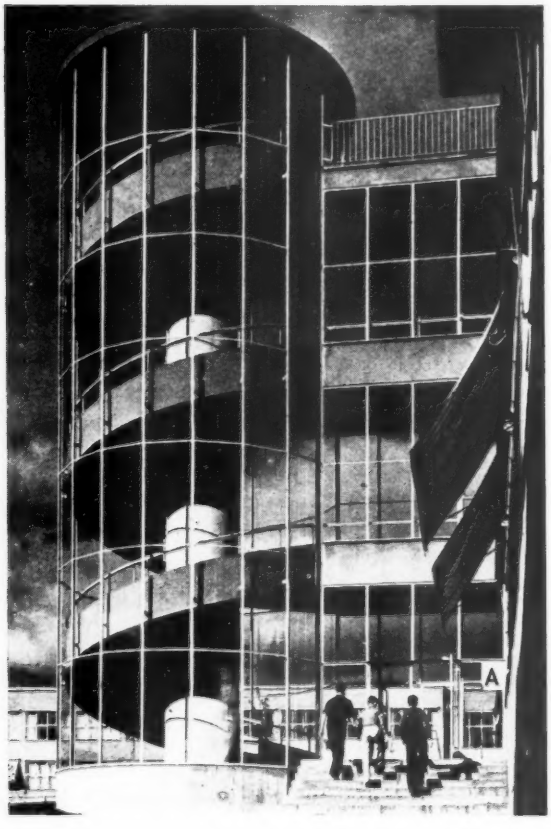
Perhaps the most engaging feature of many of these buildings is the hall. It plays an important part in school life, being equipped for plays and concerts and used both by the school and, after school hours, by local people. The Swedish architects make the most of this; many halls are of charming, though simple design. The photograph of the hall on page 551 does not do full justice to one where the texture of pine and oak, the colours of fittings and curtains make a harmony which the camera cannot capture.

These photographs are not fully representative of all sizes and types of school in Sweden; they are of several recent schools in and around Stockholm and are the work of two firms of architects, Professor Hedqvist and Professor Ahrbom and Zimdahl. They are, however, characteristic of the best Swedish school design; they have simplicity, purposefulness and a very high standard of finish.

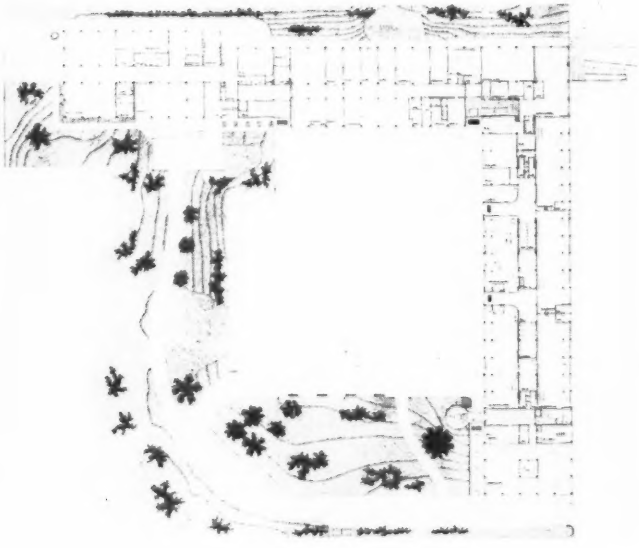
These designs, built during the last six or seven years, illustrate the principal changes which have taken place in Swedish architectural design during that time. Window area has been reduced somewhat and the vertically proportioned wooden window is now fairly common practice. Facing brickwork is also now being used to some extent instead of rendering. Anything approaching 'institutional' design has long since disappeared, pediments, columns, and classic detail, even in the attenuated archaic form fashionable in the middle twenties, having died out in school design after the Stockholm Exhibition of 1930. But the buildings are anything but dull. They rely on good massing, careful proportioning, well-selected materials and charming soft colours in renderings and paint work. An outstanding characteristic is *restraint*; Swedish architects seem to be unafraid of blank walls, and their pencils do not itch to add detail to doorways; they seem to have cured themselves (if they ever suffered from it) of what someone once called 'the half-inch detail mind,' which is the type of mind that is horrified by the expanses of bare paper when an elevation is drawn to large scale. These buildings admittedly are unexciting; they are unobtrusively well-mannered—which seems to be a characteristic of good democratic architecture. ERIC L. BIRD [4]

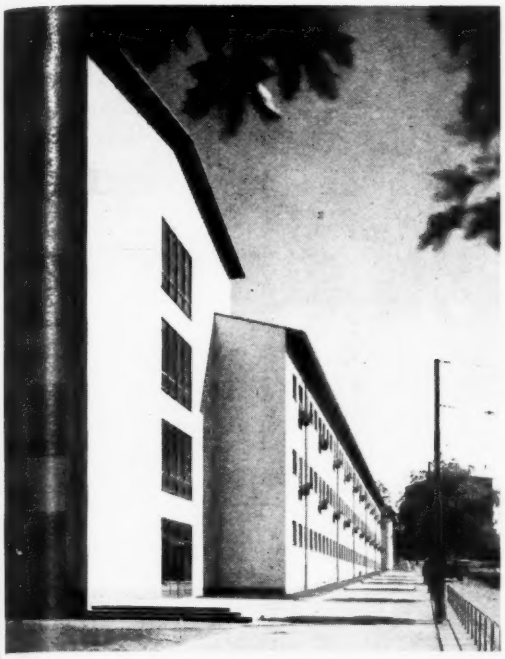
The plans and photographs on these two pages are of a secondary school for girls at Sodermalm, Stockholm, finished in 1945. Architects: Professor Nils Ahrbom and Helge Zimdahl. On the left-hand page are a general view, the site plan and two floor plans. On the right-hand page are views of the hall, in pine and hardwoods, the south front and staff conference room. The external walls are finished in light buff-coloured brickwork

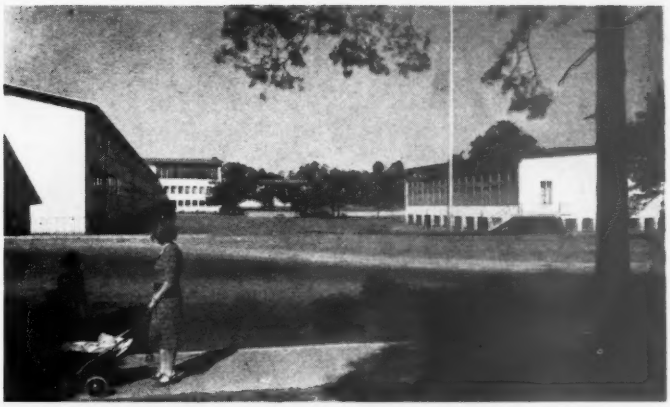




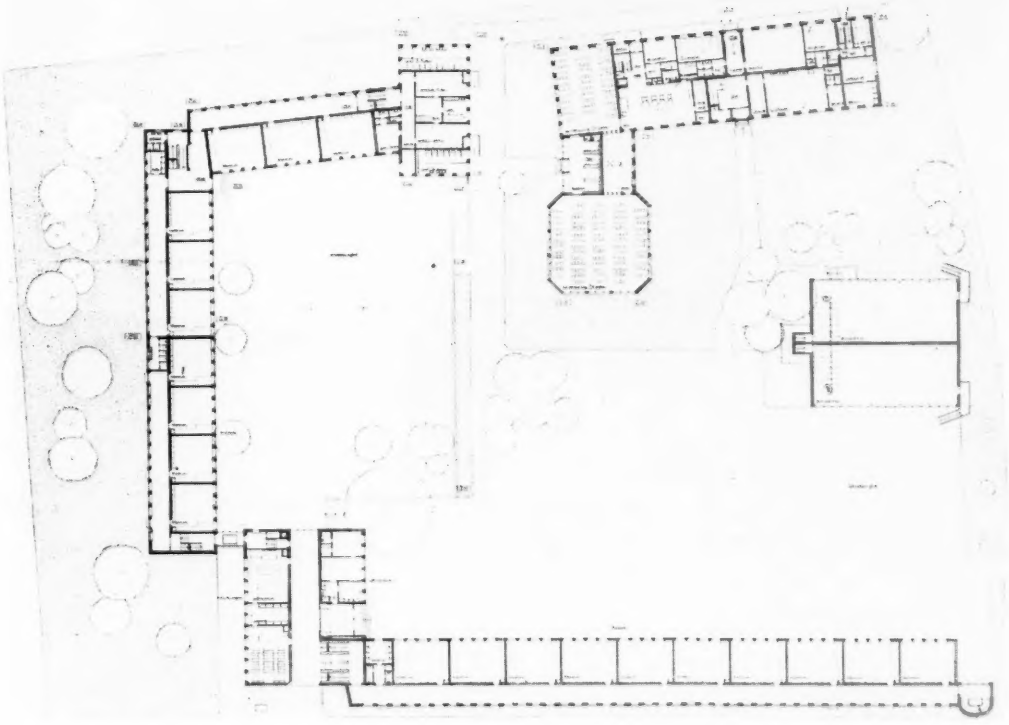
The Trades School in Stockholm by Professor P. Hedqvist is notable for its sensational staircase which is linked to the main building on the ground floor by one of the entrances. The central courtyard has a series of covered cycle racks. The ground floor plan has the electrical section on the left, motor engineering in the centre and woodworking in the long rooms on the right

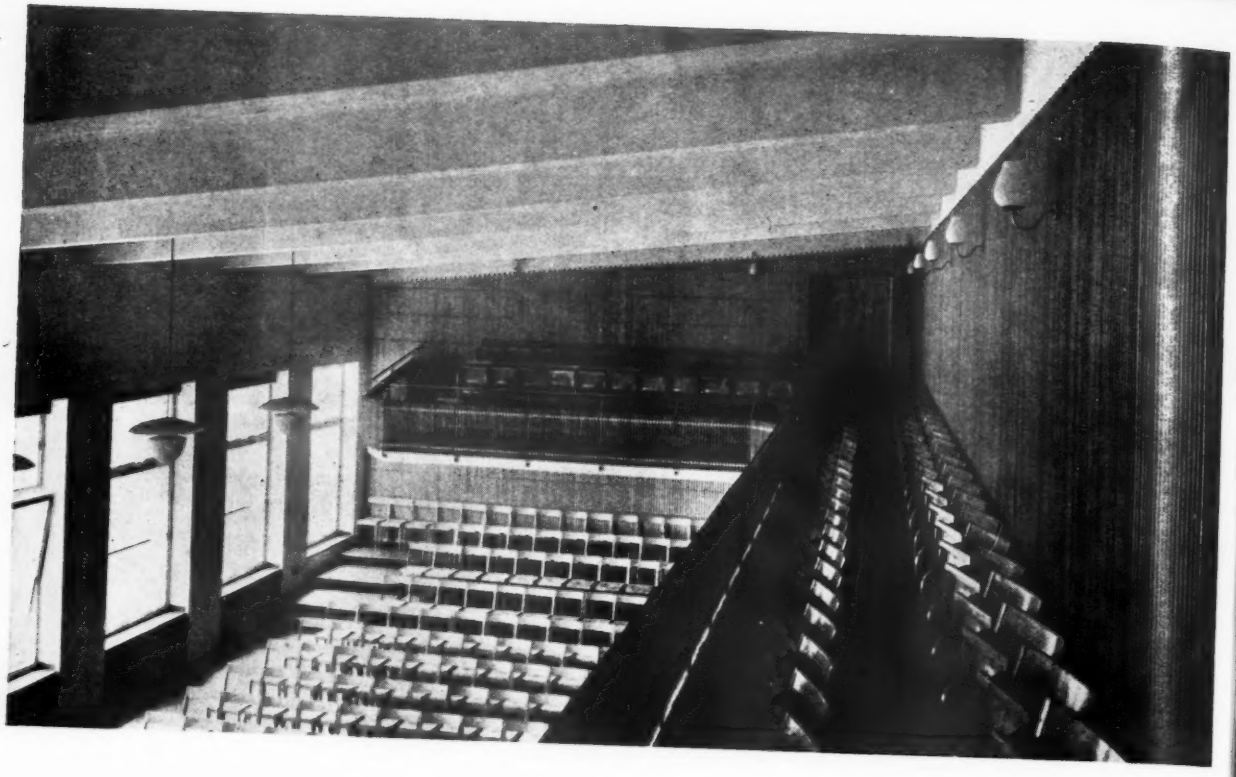


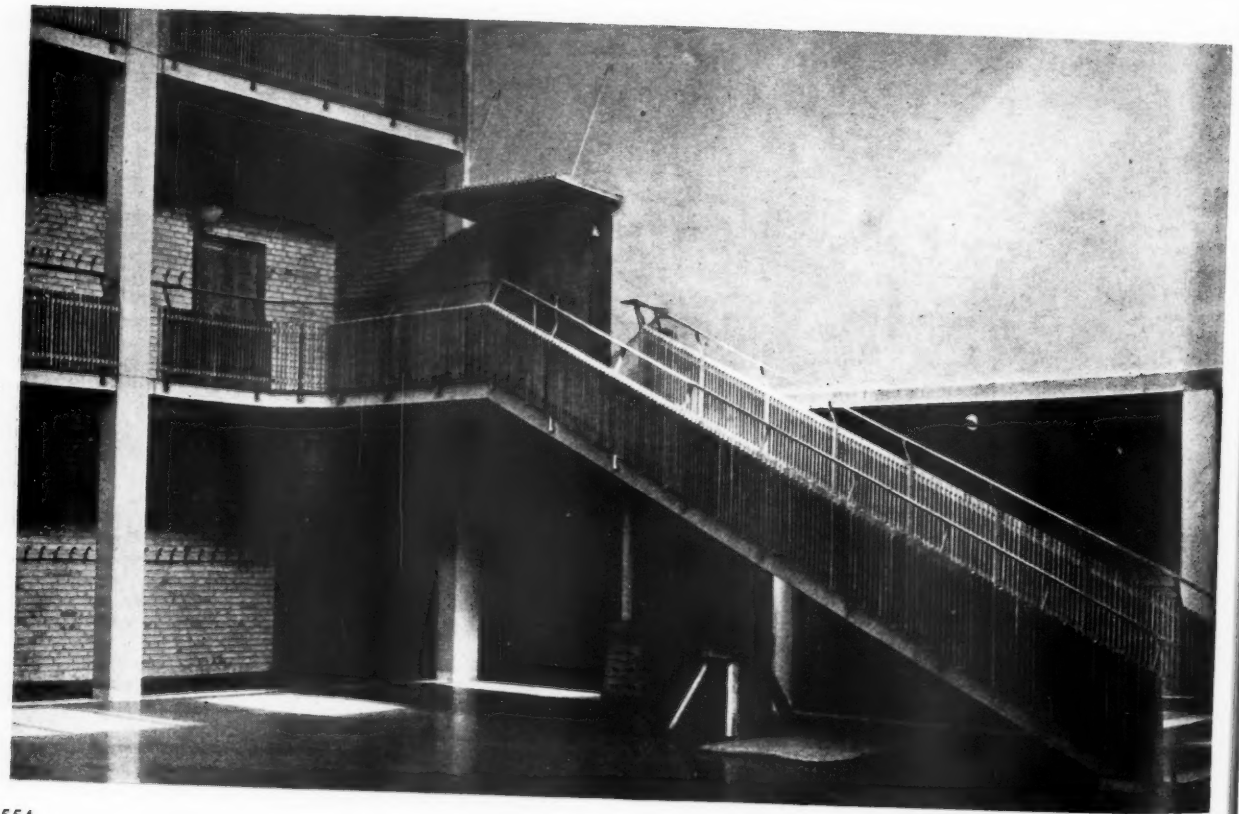


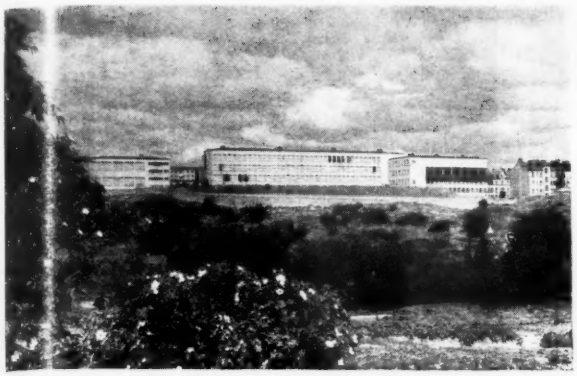


Fredhäll Elementary School, Stockholm, was built by Professor P. Hedqvist in 1939. Note the various aspects of the classrooms and the detached pair of gymnasia which are raised above changing rooms in a semi-basement. The centre-hung double-glazed windows in the classroom are typical of recent Swedish practice. In the cold winter they are kept tightly shut and ventilation is artificial



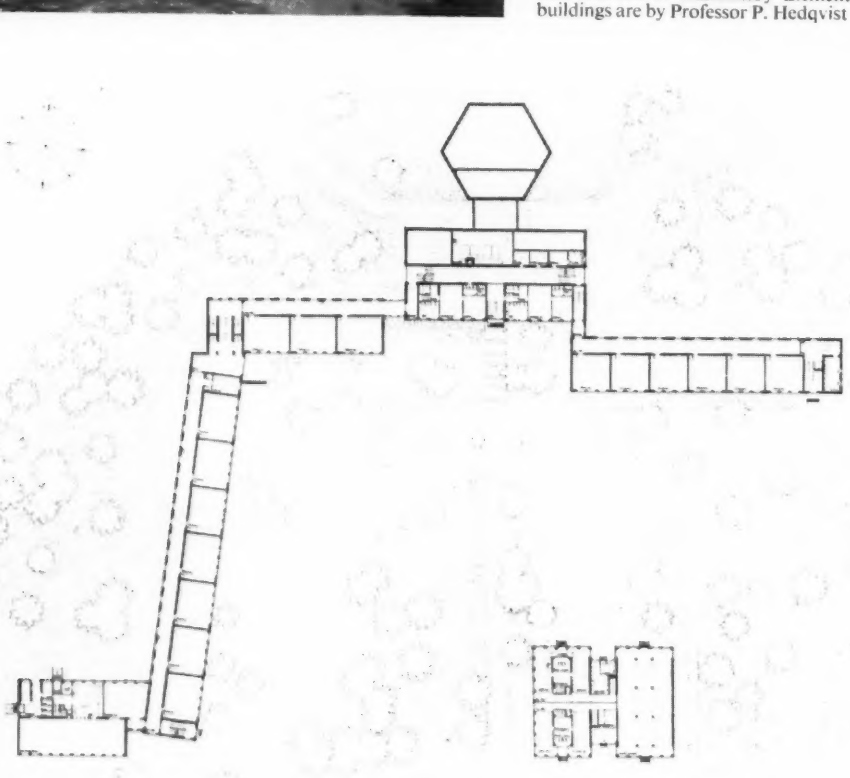






Above is the Southern Communal School, Stockholm, built in 1936; a general view and a detail of the main entrance. The latter photograph shows a good example of Swedish technique in external rendering; this is almost invariably flawless and retains its original cleanliness in the clean atmosphere. On the left-hand page and below are the auditorium, great hall and exterior of Skansvarn Elementary School at Stockholm. The unorthodox design of the auditorium is specially interesting with its sloping ceiling, two-sided balcony, asymmetrical daylighting and artificial lighting and the stepped seating at the back. Both buildings are by Professor P. Hedqvist

Above: Entrance to Bromma High School near Stockholm. Left and below: Hammasby Elementary School 1943. Both buildings are by Professor P. Hedqvist



Review of Construction and Materials

This section gives technical and general information. The following bodies deal with specialized branches of research and will willingly answer inquiries.
The Director, The Building Research Station, Garston, near Watford, Herts. Telephone: Garston 2246.
The Director, The Forest Products Research Laboratory, Princes Risborough, Bucks. Telephone: Princes Risborough 101.
The Director, The British Standards Institution, 28 Victoria Street, Westminster, S.W.1. Telephone: Abbey 3333.
The Director, The Building Centre, 9 Conduit Street, W.1. Telephone: Mayfair 8641-46.

Pitched Roofs. In January 1943 the National Pitched Roofing Council was set up to examine the position of post-war roofing, to prepare memoranda regarding the continued use of such roofs, and to study the most economical and efficient use of available material in their construction. The members are drawn from various associations and federations of manufacturers dealing with roofing materials. During the last two years the Council have sponsored annual competitions at a number of architectural schools; prizes to a total value of 15 guineas being offered at each school for the best designs showing the application of pitched roof coverings. The Council have recently issued a report giving some observations on the drawings, including points noted by the heads and staffs of the schools, as well as those made by members of the Council and independent architects who helped in the adjudication. The report says that the general standard of the drawings was high, but makes the comment that a number of the errors were clearly traceable to an absence of detail drawings; in some cases the candidate would no doubt have discovered, if he had drawn a large-scale detail, that the construction he had shown on his $\frac{1}{8}$ in. drawings would be impracticable. The report suggests that in future competitions candidates should be encouraged to include $\frac{1}{2}$ in. or 1 in. details of such parts as eaves, verges and valleys.

Perhaps some of our younger readers will be interested in the following brief precis of the adjudicators' remarks on the drawings. Students correctly showed the use of slates of standard sizes, but were a little shaky on random sizes in diminishing courses. Few candidates used any form of single-lap tile, and two honestly admitted that they had only a sketchy knowledge of such tiles. The importance of pitch was not sufficiently recognized; some entries showing plain tiles on a roof of less than 40 degrees. The principles of the double course at eaves, both in tiling and slating, seemed to be well understood, but in dealing with sprocketted eaves some were shown so pronounced that in practice there would be a difficulty in centre-nailing the course of slates bridging the junction between sprocket and common rafter. Valleys seemed to bother some of the competitors, especially where the open metal kind was shown, as not enough cover was provided.

These comments, coming from experts in their particular field, should be of assistance to the young student competitors in gaining detailed practical knowledge.

Australian Building Research. If there are any persons who do not realize that England is not the only country suffering under building material difficulties they will be enlightened if they read some documents recently received from the Australian Commonwealth Experimental Building Station, Sydney, of the Department of Works and Housing. They are recommended codes of practice in draft form for comment, and a preface says that 'Discussions with the Standards Association of Australia have indicated that, in all cases such as this, with the initial attempt at standardization once made, co-operation between the Association and the Station will later result in the issue by the Association of an official Australian standard covering the matters included in the code.' The draft codes deal with three types of precast concrete slab walls, and the Station says 'A number of systems of wall construction, utilizing concrete slabs or blocks which have an additional supporting framework in the plane of the wall, have been submitted to the Commonwealth Experimental Building Station for consideration as a means of alleviating the present shortage of certain orthodox building materials.'

The three types of slab walling dealt with are: (1) where each slab extends in a single length from floor to ceiling, and with each slab as an integral unit, without additional structural frame; (2) slabs extending from floor to ceiling and of such length that they form a complete wall of a room; and (3) slabs or blocks having an additional supporting framework in the plane of the wall, to be used in buildings not exceeding two storeys in height; types 1 and 2 being restricted to one-storey buildings.

There are also three Bulletins, No. 1 on the 'Structural sufficiency of domestic buildings', No. 2 on 'Sizes of timbers in floors of domestic buildings', and No. 3 a draft bulletin on 'Footings for small buildings'. The last indicates how 'a series of footings of differing sizes and shapes must be designed for a series of different loading intensities, if all footings are to settle equal amounts on the same soil'. The bulletin goes into this question very thoroughly, with explanatory diagrams and tables. Regarding current specifications and codes of practice in connection with housing, bulletin No. 1 says: 'In this field, where advantage must be taken of every legitimate opportunity to reduce materials and labour and where the fineness of design must therefore transcend what is common to normal structural engineering practice, some balance has to be struck between unwarranted caution and the untempered radicalism patent in some proposed systems.' It could not be put more delicately.

These documents will be found in the R.I.B.A. Library

Domestic Flues. The ordinary square brick flue has its disadvantages; if the parging becomes defective, or is dislodged by the sweep, it needs something approaching a major operation to put it right, and soot in the extreme corners is liable to be missed by the brush of the sweep. A badly shaped cavity around the gathering may also cause trouble by allowing the formation of eddy currents which tend to reduce the flow of the products of combustion up the flue. Any system intended to reduce these unpleasant possibilities is worth consideration, and the 'true flue' method aims at no less than that. In this system the flue pipes are made of fireclay to a circular section of $7\frac{1}{2}$ in. diameter; they have spigots and sockets to ensure correct alignment, and give a perfectly smooth bore through the run of the flue. Standardized bends allow for changes of direction, and at the top of the flue a venturi formation helps draught and the evacuation of the products of combustion against the outside pressure. The complete system includes precast concrete blocks with which the chimney breasts may be built, and these not only give a fair face, but also act as outside shuttering to contain the weak concrete which is placed round the fireclay flues, and for this purpose the blocks have short returns ending with a bulbous section which forms an anchorage in the concrete. In addition a fireplace assembly is available, including a hearth block, fireback, front hearth, and flue block in which a lintel is incorporated. If desired, the chimney breasts and stacks can be erected independently of the rest of the building, and in this case ties would be inserted for bonding into the adjoining work when erected. The usual brickwork breasts and stacks can be built, if preferred, instead of using the prefabricated blocks. When convection heating to upper rooms is required, air warmed by the back of the lining may be taken up through asbestos ducts built alongside the fireclay flues, cold air at low level being brought in through shaped asbestos piping and elbows. There is another variety, made for boiler and cooker recesses, in which tiles are permanently cast in the concrete blocks. Detailed information may be obtained from Messrs. True Flue Ltd., of Carlisle House, 8 Southampton Row, W.C.1.

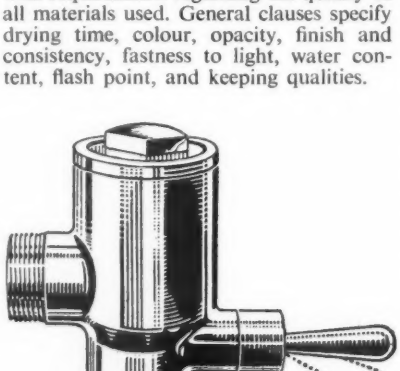
Imcos. The Appointments Department of the Institute recently said that they were receiving a good many inquiries about appointments overseas, including questions on the hours of sunshine, amount of rainfall, and degrees of temperature, that is—climatic conditions; these come under the science of climatology, which deals with the effects of temperature, humidity, pressure, winds, rain and snow on surface conditions. We here have a general idea of the climate of the various districts of England, but if an architect is called in to advise on the siting of a building, or group of buildings, it is necessary to know about the localized climate, or microclimatology, as it has been called. There is a case reported from South Africa where buildings erected at a certain spot were found to be exposed to a great deal of rain, whereas the microclimatologist could have told the persons concerned that at another spot, only three miles away, the rainfall would be very much less. So it is in this country, for although we may assume that the prevailing wind will come from a certain quarter it may well be that local conditions around a proposed site may cause it to come from a slightly different direction. Natural features, such as a belt of trees, will not only break the force of a wind but will cause it to diverge and separate into several currents each of lesser intensity than the original, thus air-borne particles from, say, a factory to windward will be partly screened by the trees and machinery noises will be reduced. Cold air as it flows downhill may be dammed by an obstruction and cause a pocket intensifying the coldness of a building set in that position, with bad results on the fuel position and the comfort of the occupants.

A great deal of study has been given to microclimatology, especially in America, and many effects have been observed. Several of these we know from experience, without perhaps being able to say exactly why they occur. Who could state the variation in temperature just over surfaces respectively of concrete, asphalt or grass, on a sunny day, although we are all aware of the difference to our comfort in walking through the paved streets of a town and in doing so in a garden city, with its areas of trees and shrubs and grass.

The building trade is more concerned with the wider field of meteorology, which can predict the weather conditions likely to occur during a given period and so allow a contractor to arrange his building programme with the weather risk reduced to a minimum; he can hasten his movements of materials if heavy rain, snow or gales are expected, or he can arrange for concreting if the duration of a frost can be accurately foretold. He can guard against the effects of excessive heat. It is well known that during the late war the meteorologist helped in planning the invasions, and he did so from his records of past weather, for it has been found that world weather conforms to definite patterns and follows predictable sequences, and as accurate records exist of weather during the last 50 years the experts were able to foretell the conditions likely to occur during critical days of the military operations. These data, and some of the highly-skilled team of war-time experts, are now with the International Meteorological Consultant Services (IMCOS), of 200 High Holborn, W.C.1, who can thus provide climatological reports as well as weather forecasts, and their clients include—in the building world—construction and road haulage firms. The collection of meteorological data is now on an international level, as ten nations are contributing ships, crews and scientists for the purpose, and our own ship, the British Weather Observer, has already started work.

In recent years our knowledge of soil mechanics, insulation, weather-proofing and so on have so greatly increased that we are in a much better position to guard against the effects of localized climatic conditions in the widest sense, if we take the trouble to find out what they are.

B.S.S. 929/1947. Ready mixed oil paints. This British Standard is a specification scheduling the composition of paint for priming, undercoating and finishing coats, with requirements regarding the quality of all materials used. General clauses specify drying time, colour, opacity, finish and consistency, fastness to light, water content, flash point, and keeping qualities.



The Victory Valve silent W.W.P.

A Silent W.W.P. Of all the sounds that can arise from the water installation in a house, and there are several, one of the most annoying is the gurgling and hissing that occur when a bad type of water waste preventer is filling; some of the best patterns are practically silent, but hardly any are perfectly so. The 'victory valve' claims to be quite silent. It operates on a system entirely different from that embodied in the Burlington type of cistern, and it is only some 5 in. high, and 2½ in. diameter, omitting the operating handle. This valve consists of three main parts; the body, or outside casing, with inlet and outlet; the piston; and the handle with its plunger. The piston, as the term suggests, is able to rise and fall within the body and normally rests on a sealing ring of rubber some ¼ in. thick. On the top of the piston is a mushroom valve which is kept in place by a coiled spring. From the mushroom a stem depends, with a telescopic lower part. The piston has a groove in it, in line with the inlet from the main tank. In the lower part of the piston is a round aperture, normally covered by the lower part of the body. The operating item can be either a universally-jointed handle or a plunger; each form pushes a rod which engages with the stem of the piston and forces it sideways, thus raising one side of the mushroom valve off its seating. The operation of the valve is as follows: when it is not in use the piston is resting on its rubber seating, the upper part of the body is full of water exercising pressure on the top of the piston, and the water from the main cistern is pressing on the groove and body of the piston. When the mushroom valve is lifted by the action of the handle-rod pushing on the stem, water falls from the upper part of the body, thus lowering the pressure and causing it to be less than that of the water in the inlet pressing on the groove in the piston. As the piston cannot fall, because it is already resting on its seating, the inlet water pressure causes the piston to rise, and as it rises the aperture clears the lower part of the body and water rushes through it to flush the pan. But the upper part of the piston has a slight clearance between it and the inside of the body, so that water is able to pass up into the upper part of the body, and it does this at the same time as it is passing through the valve to flush the pan. As this water fills the upper part of the casing so it exerts pressure on the top of the piston and forces it down on its seating, the aperture is covered again by the lower part of the body, the water supply is cut off and the flush stops. The capacity of the upper part of the body, and the clearance between the piston and the body, are worked out mathematically so that the time occupied in filling and pushing down the piston is such that only two gallons can pass before the flush is cut off. After one flush the valve is ready again in a very few seconds, one may almost say at once, and there is no sound of refilling. There is, of course, the usual sound of the flush as water rushes into and around the pan, but once that stops there is silence. There are one or two conditions of installation; the supply pipe from the main cistern must not be less than 1 in. and it must have at least 15 ft. head; a 1¼ in. supply requires a minimum of 6 ft. head. If used off the main supply, piping must be not less than ¾ in. and water pressure 30 lb. to 60 lb. The valve has been passed for general use by some 24 water authorities in England. The N.P.L. has subjected it to 100,000 operations, using water of 43 per cent hardness, to see if there was any corrosion or leaking, and at the finish of the test there were no signs of either; the only indication of wear was at the end of the handle-rod and even then another ⅛ in. could have been worn away without shortening the rod to such an extent that it would fail to actuate the mushroom valve. The valve is made of Admiralty bronze. The present address of the company is Victory Valves Ltd., 8 Cavendish Place, W.1.

Distinction in Thesis

Notes on Theses which received Distinction in the 1946 Final Examinations

FROM time to time in the past the JOURNAL has published theses which gained distinction in the final examinations; these occupied a considerable number of pages and present pressure on space prevents the practice being carried on, at least for some time to come. But it does seem a pity that these theses should not be known to members, even if only in outline; they are the result of much study and labour and are often very interesting pieces of research. The JOURNAL therefore proposes to make reference, as opportunity permits, to such theses as have been presented to the Library by the authors, and the following five are those awarded distinction in the 1946 examinations.

The purpose of these notes is to give an indication of the scope of each thesis, so that anyone having a special interest in the respective subjects may know whether or not the work will be of use to him. These notes are necessarily very condensed, and where the author has not been actually quoted his remarks, opinions and conclusions have been summarized, but there are no editorial comments, as there would be in a criticism; care has been taken to represent the work of the author as accurately as is possible in a severe condensation, and what appears in this article may be taken as being 'all his own work'.

Public Open Air Swimming Pools: Their Planning and Design.
By John G. Davison.

The author begins his thesis with a reference to the Roman baths built by Marcus Agrippa and then says that 'after the decline of the Roman Empire, swimming in architectural surroundings did not reappear until the 19th century, with the exception of some 15th and 16th century semi-private baths'. Mass bathing is now very popular and has come to stay, and people look for swimming facilities in their home towns; hence the open-air swimming pool. The author stresses the importance, in selecting the site, of accessibility and ample space for providing terraces, lawns, and—of course—a car park. He then gives a schedule of the accommodation needed and goes on to give dimensions of pools, bearing in mind the requirements of the Amateur Swimming Association, who are the controlling body for all recognized aquatic contests in this country. Recommended lengths are 165 ft., 132 ft., 100 ft., 75 ft., 60 ft., and 50 ft., the last being suitable for children's pools. Widths should preferably be 60 ft., to allow for polo, but 48 ft. is suitable for a 132 ft. pool, and 42 ft. may be regarded as the minimum for all pools where there will be racing and polo. The depth of water below the high diving board is very important, and the author gives 15 ft. as the maximum for diving from 10 metres, and 14 ft. as the minimum. He recommends 12 ft. below a 5-metre diving board, and 8 ft. 6 in. as the minimum for a 1-metre board, giving the general formula that the depth of the water must be at least half the height of the diving board above the water level. The length for which these depths should extend beyond a point just below the end of the diving board is then given. There are no factors governing the shape of a swimming pool other than those imposed by the boundaries or contours of the site itself, but a rectangular shape seems to be the most usual. Mr. Davison, however, likes the shape of the New Brighton Pool, Wallasey, Cheshire, illustrated in Fig. 1. He then goes on to discuss the capacity of a pool, and here, of course, the question of revenue is important. After some notes on construction, various possible finishes to the walls, floor and surrounds are described, examples being given from various pools throughout the country.

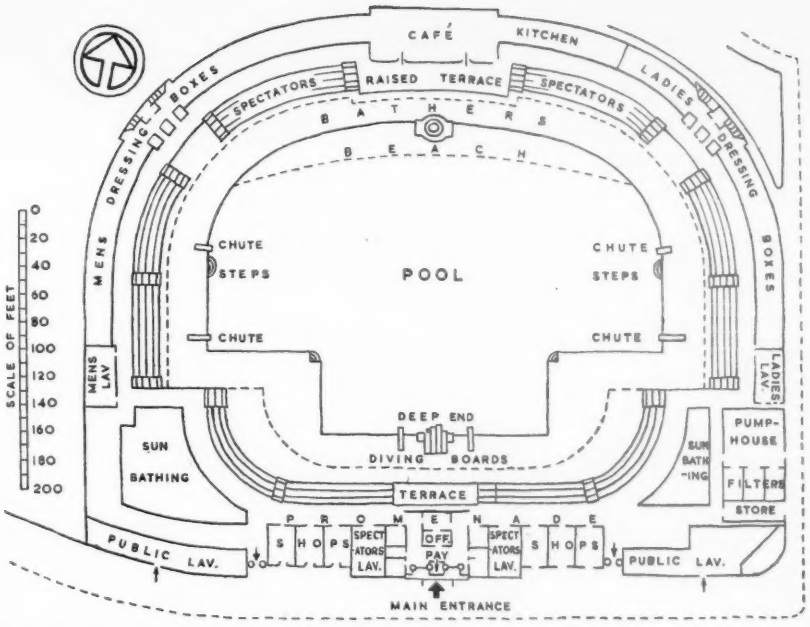


Fig. 1: The Swimming Pool at New Brighton, Wallasey

Planning and circulation requirements are considered from two aspects: (1) where spectators are not catered for, and (2) where they form a quite large proportion of those using the pool. In both cases the requirements for those who go to bathe are much the same; and as mixed bathing at all times seems to be general, dressing accommodation for each sex must be properly separated and the circulation arranged accordingly. The paybox is the focal point of the entrance, of course, and then the sexes separate and pick up towels and costumes before going to their dressing boxes. Lavatories should be so arranged that bathers can reach them from the pool without having to pass through the dressing boxes. An important point is to provide showers and footbaths so placed that bathers must pass through them before they reach the pool, even if returning from the lavatories. The author favours the respective dressing boxes for each sex being at opposite sides of the pool, with the café or refreshment rooms and staff rooms placed at one end; the offices, plant room, laundry and drying rooms being at the other. Spectators should have easy access to their seats without having to mix with the bathers; a usual arrangement is to place the seats over the dressing boxes, and preferably with their backs to the sun.

The lay-out of the dressing rooms needs careful detailing, dependent on the method chosen for storing bathers' clothing while they are in the pool. The old system of separate boxes, in which the bather left his clothing, is extravagant and takes up too much space, but it may be combined with the locker system in which the pay office gives the bather a ticket and a numbered wrist band. Having undressed in a cubicle he puts his clothing in a locker and locks it. When he wants to dress he gives his wristband to the attendant, who opens his locker. There seems to be a tendency to discard the locker in favour of the basket, which does not take up so much room. In this system the bather is given a basket in which he puts his clothing and valuables, and hands it to an attendant, who stacks it until the bather wants to

dress again. Another system is the clothes hanger and basket combined.

The author devotes a good deal of consideration to the design of the edge of the pool and the scum trough, which he illustrates. A raised coping to the edge helps in stopping water from the surround draining into the pool, but suitability for a racing 'take off' must not be forgotten and for this reason the projecting open trough is not good. A recessed scum trough is better, but its shape must not be such that the

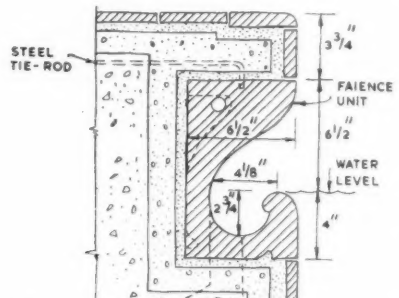


Fig. 2: A scum trough for a swimming pool

knee or foot can be caught in it. The author is impressed with a scum trough (Fig. 2) designed by a well-known swimming pool architect. It is becoming the general practice to connect the scum trough to the suction line of the filtration plant, instead of letting it run to waste through the surface water drainage, and here the author discusses the question of clearing the bath of impurities. He does not feel happy about the usual arrangement of inlets at the shallow end and outlets at the deep end, as he thinks floating particles may not be fully cleared, although they are supposed to be drawn out along the scum trough. Mr. Davison has a suggestion on the matter: he would fix the side troughs with a slight fall towards the deep end, and keep the water level slightly below that of the shallow end trough lip but definitely above that at the deep end. Thus no appreciable volume of water would enter the trough at the shallow end, where it should be perfectly pure, but an ever-increasing amount would be drawn into the trough as the deeper end is approached, where it is less pure; the greatest overflow being at the deep end itself. Throughout its length the trough would thus be more efficient, or less, at different points precisely as water in its vicinity was more, or less, under suspicion of infection.

The paper deals with cleansing of the water and the necessary filtration plant; heating the water; lighting, both over and under water, and several other ancillary matters. It ends with 'Conclusions', stressing the merits of the open-air swimming pool as against the covered bath, and saying that 'in the interest of the nation's health, well planned and equipped swimming pools are to be encouraged'.

Plastics: The New Building Materials
By E. W. Chandler

This thesis is divided into three parts: plastics: the materials, with an appendix, their application; and lastly, plastics and the future. In his Foreword the author says that he has restricted the term plastics to the synthetic resinoids and those composite materials in which they constitute an essential element, but some attention has been given to resin-bonded plywood as it is difficult to draw a line between this and laminated plastic sheeting with a wood base. The use of plastics is discussed in relation to structural and other elements rather than to any particular type of building.

The typical plastic, although not a substance of organic origin, is a product of organic chemistry as usually defined, that is, the chemistry of the carbon compound; the carbon atom possesses the unique power of forming molecules of extraordinary complexity, and it is this power that determines the characteristic properties of plastics. The growing importance of plastic materials in building makes it advisable for the architect to have a knowledge of the essential properties, processes of manufacture, and different types of plastics comparable to that he needs to have about iron and steel, and the thesis sets out to summarize this knowledge, beginning with a brief discussion of the molecular structure of plastics and the changes that occur under the application of heat, ultra-violet light, and other agencies, which produce polymerization, that is, the joining up of the molecules. The essential constituent of a plastic is the synthetic resin, which acts as the binding agent much as cement does in concrete. Usually a filler is added, such as wood flour; other constituents may be pigment and dyes, lubricants, accelerators, and plasticizers or solvents. The processes of manufacture are touched on lightly, the author considering that only the finishing stages of production are of interest or importance to the architect. Moulding and other processes are then described, and for this purpose plastic articles are divided broadly into two classes, (*a*) moulded articles, to which a surface finish is sometimes given, and (*b*) articles produced from standard shapes such as sheets, rods, tubes and so on.

In compression moulding the plastic in powder form is compressed between heated steel moulds under hydraulic pressure; one form of press is shown in Fig. 3. This is the chief method of producing thermo-setting articles, as the heat and pressure cause the material to polymerize in a few seconds, thus allowing articles to be produced at a great rate. There are, however, limitations to the range of shapes that can be produced by this method. Injection moulding is the typical process for thermo-setting plastics, in which the powder is heated in a cylinder to a plastic condition and is then forced into the mould. When the mould has cooled sufficiently the articles can be ejected and the process repeated. Small articles can be treated by the transfer moulding method; in this case the powder

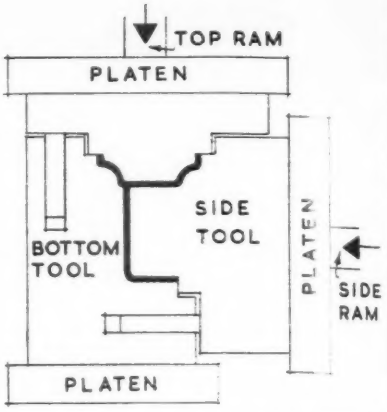


Fig. 3: A side ram press for compression moulding

is heated to plasticity and is then injected into the moulding before polymerization takes place. Very light articles can be produced by impression moulding, wherein the powder is put into a mould and is heated until it becomes viscous, the mould is then inverted and cooled, when the plastic flows down the inside and forms a thin coating.

Both thermo-setting and thermo-plastic materials can be extruded, the former being heated only as they pass through the die, while the latter are preheated to plasticity and are cooled before they leave the machine. To save the expense of strong moulds thermo-setting plastics are sometimes cast, while thermo-plastics can be moulded by placing two heated sheets in a mould and expanding them against the sides of the mould by blowing steam between them.

The standard finish is the smooth polished surface produced by moulding or subsequent polishing; combinations of colours can be obtained by mixing plastics of varying tints before moulding; etching by chemicals can be done, and engraving and carving have been tried. Painting is also possible, cellulose and metallic paints being equally suitable. Composite materials are possible by combining plastic sheeting with other suitable materials, of which there is a wide range, and thus strength may be combined with lightness, impermeability with thermal insulation, and weather resistance with decorative finish. Reinforced and laminated plastics, resin-bonded plywoods, and other wood products in combination are obtainable, as well as composite boards.

In the appendix to Part I the author gives descriptive notes of the chief plastic materials, with their trade names and applications. Some idea of the extent of plastic possibilities will be gathered from the fact that some 66 trade names are mentioned. Part 2 deals with the applications of plastics, and states that as plastics are expensive their use can be justified only in certain circumstances, which are outlined. Detailed consideration is then given to certain aspects of the use of plastics, such as

transparency, on which the author says 'Man has so far been timid in his use of transparent and translucent substances in building. All the traditional materials for structural purposes have always been opaque. Consequently, it is not surprising that we should have come to associate opacity with stability'. Load-bearing members are then discussed, and on this point the following disadvantages are noted: the low melting point of thermo-plastics; the low modulus of elasticity of plastics in relation to their strength; and the lack of ductility of thermo-setting resinoids, but wood-plastic combinations are a different matter, and laminated timber can be used with considerable economy of material wherever wood members are now used. The author does not think plastics are likely to compete successfully with clay blocks for walling, except possibly where transparency gives them a claim to consideration as competitors to the glass brick, but for wall panelling plastic sheeting, plywood and resin-bonded compound boards are possible alternatives. Experiments are being carried out to test the possibility of rendering external walls with some plastic compound. Partitions, floors, walls and ceilings and roofs are then discussed, and the use of perspex for roof covering is described.

Under the heading of structural components various possibilities are considered, the definition of the term being 'those components incorporated in a building in the course of its erection, but not forming part of the structure, nor—a rather negative definition—conveniently classified under any other heading'. Under the sub-heading of moulded fitments the author suggests that such items as service hatches and cupboards could be made, ready for building in. Flush doors are too well known to call for description, except that the author feels that architects should carefully consider resin-bonded plywood for external doors. Economics enter into the question of making plastic window frames, but the author mentions one future possibility—that of making the opening lights and their 'glazing' in one unit moulded in transparent plastic, or built up from sheet. Fireplace surrounds, staircases, trim, electrical and other fittings such as door furniture, drawer pulls and so on, are mentioned.

In Part 3—plastics and the future—the author turns to the coming days and wonders. 'Will the man of the future live in a plastic world? Or will his environment still contain the present variety of material?' The author believes that the truth lies somewhere between these extremes.

Soundproofing and Acoustics
By Clifford W. Turner

Mr. Turner begins his thesis by defining the two titles: 'Soundproofing and Acoustics are two distinct but closely allied sciences. Acoustics is the science concerned with the transmission of sound from its source to the auditor clearly and with maximum speed, while soundproofing is the science concerned with the prevention of the transmission of sound from its source to the auditor, and it is because the average individual is more directly concerned with soundproofing rather than acoustics that I commence this thesis with soundproofing'. The thesis is divided under the following heads: the work of the Anti-Noise League; noise, how it affects efficiency of workers; the law and noise nuisance; bye-laws and local authorities; the use of natural methods; practical soundproofing and housing; practical soundproofing in private, semi-detached and terrace houses; practical soundproofing of utilitarian structures; measurement of sound; and the theory of acoustics.

In 1933 Lord Horder and other eminent physicians initiated the Anti-Noise League because the medical profession realized that noise was undermining public health, especially when the night's sleep was disturbed, and the object of the League was to promote the cause of quiet and prevent interference with the amenities of life by avoidable noise. Experiments have proved that noise affects efficiency, and that groups of workers are affected to a far greater degree than individuals are. There are two principal ways in which noise may come within the reach of the British law; it may be a nuisance at common law or it may offend against a statute. In common law a public nuisance is one that affects the community, while a private nuisance affects a determinate number of persons. A public nuisance constitutes a criminal offence for which the person responsible can be prosecuted, while a private nuisance is not a crime at all but only a civil wrong, for which the person responsible is liable to be sued by the injured party. Various legal definitions of actionable noise nuisance are extracted from cases that have been tried, these are too long to quote in full, but an important point is that 'It has been clearly established in various law cases that, if a nuisance is proved, it is no defence for the defendant to show that the plaintiff came to the nuisance. It is immaterial whether the plaintiff came to the nuisance or the nuisance came to the plaintiff.'

The author considers that not one in a thousand buildings throughout the country has been planned with due regard to soundproofing and acoustics, and sets out his ideas. Trees are probably the most effective and cheapest of all natural methods in the prevention of transmission of airborne noise nuisance from external sources. In any town planning scheme noxious trades should be segregated, and under the heading of noxious the author considers that noise-producing industries should be placed at the top, whereas they do not appear at all on the Ministry of Health's list.

The history of soundproofing is generally thought to be of short duration, but although the most effective and important developments have been made in the last 20 years, there is ample proof to show that architects even as far back as the 17th century recognized the need for the prevention of transmission of noise and made what would now be considered as crude attempts to effect a solution. In the soundproofing of domestic buildings the first specific reference appears to be in a Government report on housing, dated 1844, wherein the use of lime-pugged floors was recommended in working-class houses. Late 17th century floors at Hampton Court Palace show that sound insulation was a dominant feature in the design, in which light fillets were attached to the lower part of the joists and supported a layer of close-boarding which, in turn, supported a sound absorbent. The French architect, J. F. Blondel, in his *Cours d'Architecture*, mentioned lime-filled floors. The bombing of property in England during the war has resulted in much information being obtained on the treatment of floors during the Victorian period, showing that methods adopted for rendering floors soundproof have changed very little.

Turning to practical soundproofing in the immediate post-war period, the author remarks that 'Owing to the increased costs of labour and materials the scope of the planning is somewhat restricted and expensive soundproofing materials cannot as yet be introduced and therefore maximum use must be made of natural common-sense methods which are inexpensive yet add appreciably to the mitigation of sound transmission'; he then discusses party walls, mentioning the 11 in. cavity type; general planning, keeping the habitable rooms and main bedrooms in each house as far apart as practicable; front and rear walls and the disjunction of the outer skin by a strip of insulating felt in line with the cavity of the party wall, from foundation to eaves level; breaking the foundations in line with the party walls; and urging that high-level type w.w.p.s should never be fixed on a partition wall. Windows next the party wall should be handed so that the nearest casements open towards each other, thus helping to deflect noise. Floors are then considered fully, with drawings illustrating various devices for the reduction of sound transmission.

Mr. Turner then deals very thoroughly with flats, and to stress the importance of soundproofing he mentions that during the years 1925-1935 in Budapest 200,000 persons abandoned their flats in town and went to live in quieter quarters, thus causing a loss in house value surpassing the expense of soundproofing. From the insulating point of view flats are best designed to long and narrow plans with projecting wings; this makes sound insulation easier. The square block plan, with reverberating light-wells, should be avoided. In the usual type of two-bedroom flats the bedrooms should be together and separated from the living-room and kitchen by the bathroom, which thus acts as a baffle. Impact noises are carried vertically where there is steel construction and ordinary commercial structural flooring; as remedies the author gives drawings showing possible methods of construction. Bed-sitting room flats, Fig. 4, deserve special consideration because they are in request by students, school teachers and others who require quietude for study, and as they are usually separated only by a party wall they should be planned with care, with cupboards along the party wall and a duct in the bathroom, baffle lobbies, and indented balconies.

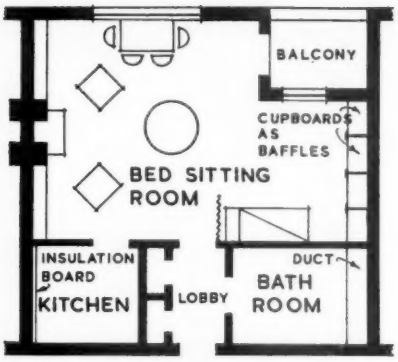


Fig. 4: A bed-sitting room flat

The last part of the thesis deals with acoustics, wherein echoes and reflection of sounds are considered. The first experiments by Professor W. C. Sabine, at the Fogg Art Museum of Harvard University, are described, from which he arrived at a formula. The author then goes into the principles governing the design of an auditorium, showing by drawings and diagrams (Fig. 5) how sounds are reflected, producing wave fronts for equal distances travelled by the sound waves.

The History and Development of the Modern Flour Mill
By George Robert Fordham

The contents of this thesis are divided into an introduction, history of milling, historical types of mills, silo buildings, recent examples of silos, mill planning and construction, power plant, factory acts applying to flour mills, planning and construction of a modern flour mill, recent examples of flour mills, glossary of terms used in milling, acknowledgments, and bibliography. Numerous photographs and drawings illustrate the text.

The first implements used in the preparation of grain were called querns, but these only crushed the grains, and grinding, as distinguished from pounding, was not used until the saddlestone was thought of, in which a stone rolling pin was passed over the grain which rested in a shaped stone. Then came the slave mills and, later, the cattle mills, in which the principle was the same, the grinding of the grain between a revolving upper stone on a stationary lower stone. Power, as distinct from manual, operation came in with water mills, using either the overshot or undershot wheel. Probably the first windmill was built by Dean Herbert at Bury St. Edmunds in 1191, and thereafter their use increased. The earliest type of windmill was the tripod post mill, in which the sails and machinery were carried in a box-like structure hung on the top of a single upright post suitably supported. To face the wind the mill had to be turned by hand by means of a long pole, projecting out behind, called the tail pole. The revolving sails conveyed a rotary motion to the upper, or runner, stone set over the stationary or bed stone.

From contemplation of the disadvantage

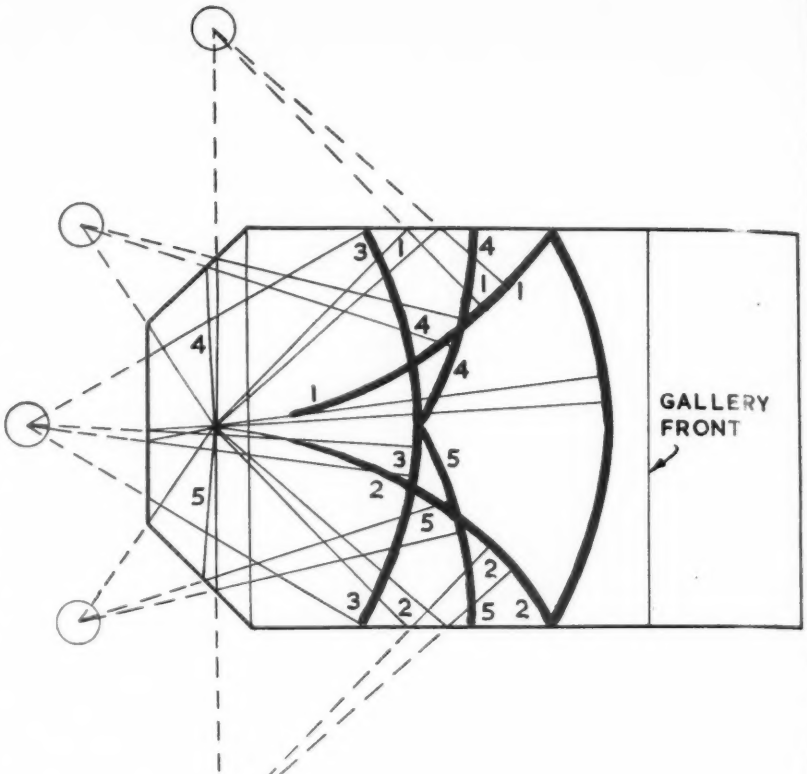


Fig. 5: Sound wave paths

of turning so heavy a burden as the post mill with all its grinding machinery and stacks of grain or flour, the idea arose of devoting the revolving upper wooden structure solely to the sail beam, and so making the labour of turning it into the wind a comparatively easy matter. This important development is attributed to the Dutchman Leegwater (1575-1650) and tower-type mills were evolved. They are of two kinds; if of brick or stone and circular on plan they are called tower mills, but if of wood, with six to twelve sides, they are known as smock mills, from a fancied resemblance to the old-fashioned smock worn by labourers. Fig. 6 shows a tower mill of architectural interest as it is attributed to Inigo Jones, who is supposed to have designed it as an observatory in 1632; it being converted into a windmill at a later date.

The storage of grain and its protection from injury by vermin and atmospheric change is of great importance, especially now that it is grown in such enormous quantities for food and other purposes, and the necessary structures and machinery are so essential that a new branch of engineering exists distinctly relating to their design, construction and working. Evils attending the storage of wheat in large quantities have to be taken into account, for excess of moisture soon ends in fermentation, germination, or the appearance of a fungus, therefore silos should not be placed where there is likely to be an over-damp atmosphere, but for commercial reasons a granary should be situated near a river, railway, canal or dock, to reduce expenses of transit and manipulation. If the intake plant is inside, the silo building should be at least 6 ft. from the edge of the quay, but in modern schemes using a travelling pneumatic intake plant 60 ft. or more is required. The main features of mill planning are: the

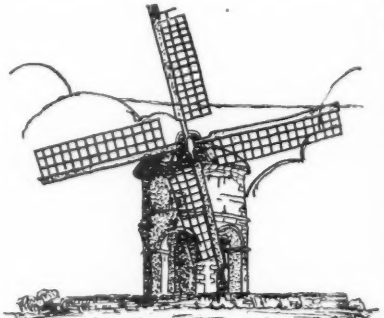


Fig. 6: A mill attributed to Inigo Jones

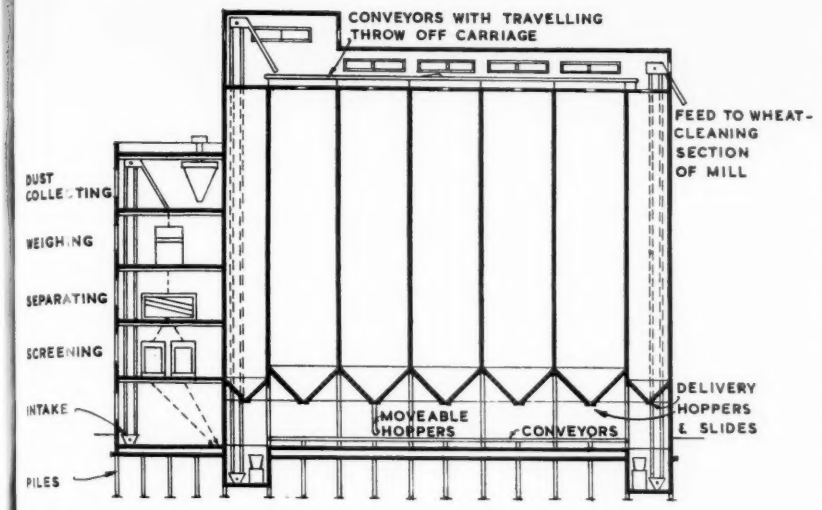


Fig. 7: Section through a silo

forward movement of the stock without wasteful rehandling or return; direct access to and from all the means of transit; central power station for even distribution of power; good light and air between buildings; accessible administrative block and offices, with baking and test rooms attached; all loading-in and loading-out to be under cover; if from a dock, all water intake to be first passed through wells and filters, and cooled before returning to the dock; lavatories and cloakrooms kept clear of the manufacturing sections; provision for motor and wagon housing; and sprinkler installation for all but the silos.

The miller must tell his architect what type of trade and grade of grain he is going to mill, as this will determine the design of the machinery lay-out, the types of machines, and the disposition of the various departments. The receiving department is usually at the end of the silo building, where the elevators take the grain to the top floor; it then descends through the weighing floor and the preliminary cleaning floors to the ground storey, whence it is taken up again and discharged on to a conveyor belt which delivers it into the bins. The grain at this stage is still called 'dirty wheat,' and has to be taken to the mill end of the silo, hoisted, and made to pass through the wheat cleaning department. When cleaned the grain passes to the mill proper; this can be single mill type, usually containing three rows of roller mills with the line of elevators down one side, or the double mill type, in which the elevators are in the middle and the roller mills are on each side. The milling machines are usually placed on the first floor, the ground floor being devoted to the drives for the roller mills, and maintenance workshops for carpenters, joiners and millwrights. The warehouse department is of similar construction to the mill building, and here are placed the flour drying and cooling plant, automatic weighers, packers, sacking closing machines, sack cleaning machines, stackers, elevators and spiral chutes. Fig. 7 shows a typical longitudinal section through a silo.

The Two John Woods of Bath
By A. Barbara Coates

The four theses considered above deal with subjects of very topical interest and reflect present-day conditions in the building world, but in Miss Coates' thesis on the two John Woods of Bath we are taken back to the leisurely times of the 18th century, when Beau Nash strutted supreme, and gentlemen took pains to perfect themselves in 'the nice conduct of a clouded cane'. Somehow those days seem faintly unreal and charged with an atmosphere of calm that perhaps was not felt by those who lived in them, and we can fully enter into the author's feelings when she says 'The investigation necessary for the writing of this thesis has been a fascinating process. It has been an exploration into the unknown —the Woods have never been fully recorded before—with enthusiasm stimulated at every fresh discovery. In addition there has been the absorbing interest of watching the gradual development of two shadowy 18th century figures into real people, full of character and personality.' It would be unfair to Miss Coates to endeavour to condense her researches into a few short sentences; it must suffice if the scope of her work is suggested, with such extracts as will show the reader whether or not the subject of the thesis is one that attracts him. Miss Coates begins with an introduction containing a brief history of the origin of Bath, mainly taken from the account written by John Wood senior; then she passes to the following subject matters: personal life; John Wood senior—his works in Bath; Prior Park and the Bath Stone quarries; John Wood senior—his works outside Bath; John Wood junior—his works in Bath; John Wood junior—his works outside Bath; books; drawings; specifications and prices; and summary. Photographs and reproductions illustrate the thesis.

John Wood, senior, came to Bath in 1727, when he was about 22, and died in May 1754, in his fiftieth year. His son was christened on 25 February 1727, old style, or 1728 as we should now call it.

The elder Wood wrote *A Description of Bath*, which is invaluable to historians of the city, and also four other books, one of which deals with Stonehenge, for he was extremely interested in the Druids. The younger Wood wrote two books—*A series of plans for cottages or habitations of the labourer either in husbandry, or the mechanical arts*, and *The description of the hot bath at Bath, rebuilt at the expense of the Chamber of that City; together with the plans, elevations, and sections of the same.*

John Wood, senior, made his first visit to Bath in 1725, at the invitation of Ralph Allen, the postal reformer, and having made a survey he prepared plans which he thus describes: 'And in each design, I proposed to make a grand Place of Assembly, to be called the Royal Forum of Bath; another Place, no less magnificent, for the Exhibition of Sports to be called the Grand Circus, and a third Place, of equal state with either of the former, for the Practice of medicinal Exercises, to be called the Imperial Gymnasium of the City from a work of that kind, taking its rise first in Bath, during the time of the Roman Emperors'. Queen Square (Fig. 8), Miss Coates says, is Wood's chief work in the city, even in the modified form in which it was eventually built. Apparently it was Wood's system to buy or lease land, partly lay it out and complete each house as he found tenants, so the façades and party walls were built first and the interior planning of each house was suited to the requirements of the individual tenants. The Mineral Water Hospital was another of his works, of which it is a typical example. Others include the North and South Parades. The Circus was the last work on which Wood was employed before his death. Prior Park was Wood's most important building; it was erected for Ralph Allen, who owned the Bath Stone Quarries, more or less as an advertisement for his stone. Miss Coates relates an amusing incident about Prior Park; Wood apparently thought Allen did not realize how much the house would cost, and doubted his ability to pay for it, whereupon Allen took Wood to his house and showed him huge chests filled with gold, after which Wood started on his design, of which he said '. . . wherein the Orders of Architecture were to shine forth in all their Glory; but the warmth of this Resolution at last abating, a humble Simplicity took place'. The mansion itself was large and 'An apartment was reserved for Water Closets if such Conveniences should be wanted within the Body of the House.' Outside Bath, the Corn Exchange at Bristol is 'probably the finest building Wood ever designed'.

The younger Wood was evidently carefully trained by his father from an early age, for when he was 12 years old he was taken to help on a survey of Stonehenge, when his father was at pains 'to imprint in the Mind of my Eldest Son, and chief

Assistant, the strongest Ideas of Accuracy in this his first Lesson of Surveying'. Three years later the son was signing a receipt for his father's fees.

Miss Coates counts the Circus among the elder Wood's work, although he saw only one house completed before his death, but the son had probably frequently conferred with his father on the intended work and had possibly done a great deal on the drawings. The Circus was built between 1754 and 1769 and is an absolute circle divided into three equal segments. The Royal Crescent was begun in 1767 and took eight years to build. It consists 'of one vast semi-elliptical terrace of houses, again all made part of one palace façade. There is no architectural echo opposite it, but the scheme is completed by a lawn sloping down to a line of trees. Nothing like this had been produced before in England; a magnificent building merging with, and augmented by the landscape, and not, as at Versailles, in conflict with its surroundings. But as a direct effect, the Royal Crescent has provided inspiration for later architects in Bath, who have produced Camden Crescent, Lansdown Crescent, and Somerset and Cavendish Places in imitation. It is this that has given Bath the beautiful pattern of terraces, which is so widely known and admired.'

Miss Coates considers the Assembly Rooms to be by far the best building which the younger Wood produced entirely unaided, if the Royal Crescent be excepted, as that may have owed some of its original conception to the father. The son's last building in Bath was the Hot Bath, built between 1773 and 1777.

An example of the younger Wood's work outside Bath is Buckland House, Fig.9, built in 1757 for Sir R. Throgmorton; the house was enlarged by Romaine Walker, who added the entrance vestibule and carried the ornamental band right round the house, whereas Wood had it only on the north and south fronts, between the capitals. Hardenhuish Church, near Chippenham, was built in 1779.

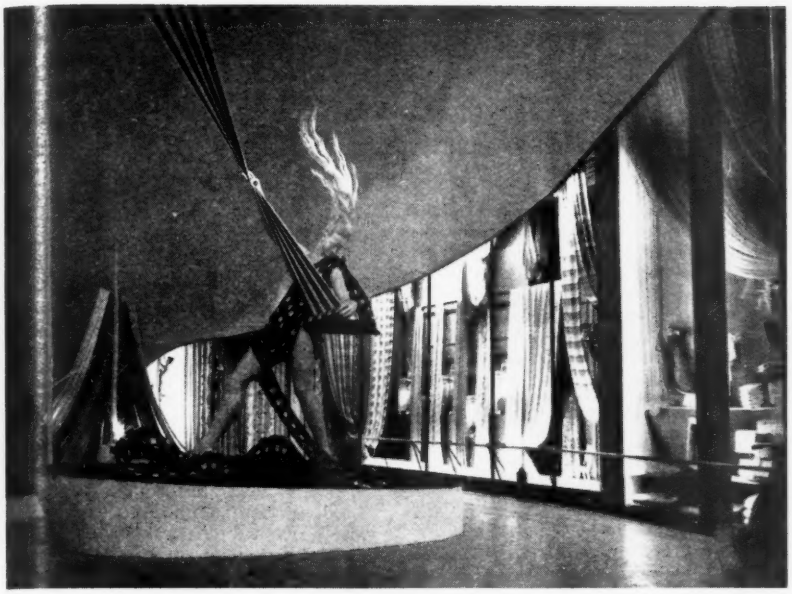
Fig. 8: Queen Square, Bath, North Side

At St. Ives in Cornwall the younger Wood carried out a housing scheme, consisting of 16 small one-room flats and the parish offices, built round three sides of a quadrangle. His book, *Habitations for the Labourer*, shows him to be, in the author's opinion, one of the first of our social reformers in architecture; when he started his research into the planning of small houses he 'began to be dispirited, and to doubt my abilities; and to wish that a man of greater eminence than myself had undertaken so useful a work; a work not unworthy the attention of the most experienced architect'.

His method of approach shows that he had the humanitarian attitude towards his art: 'In order to make myself master of the subject, it was necessary for me to feel as the cottager himself; for I have always held it as a maxim, and however quaint the thought may be, yet it is altogether true, that no architect can form a convenient plan, unless he ideally places himself in the situation of the person for whom he designs; I say it was necessary for me to feel as the cottager himself, and for that end to visit him; to enquire into the inconveniences he laboured under'. As a result of his investigations Wood formed seven principles or recommendations: among them are (1) the ground floor should be raised 16 in. to 18 in. above the ground level; rooms should be at least 8 ft. high, and no rooms should be allowed in the roof space. (2) Stone walls should be 16 in. and brick walls 13½ in. thick. The entrance should not lead directly into any room, and the aspect should be south and east. (3) The porch should be arranged for use as a store room for tools; stairs should have a minimum tread of 9 in. and a maximum rise of 8 in. (4) Houses should not be more than 12 ft. wide, for the sake of the strength of the rafters. Collar roof trusses were recommended into which the room could rise 15 in. (5) Cottages should be built in pairs, attached or detached, but never singly, for mutual assistance in case of illness or trouble. (6) Construction should be sound and elevations regular. (7) All cottages should be provided with a garden and should never be far distant from a well or spring.

Miss Coates ends her thesis with some quotations from specifications and prices, and a summary in which she appraises the respective characters of the two Woods of Bath.—F.W.

Fig. 9: Buckland House



Left: the Cloth Hall. Right: the Hall of Pinnacles

Enterprise Scotland

Exhibition at the Royal Scottish Museum

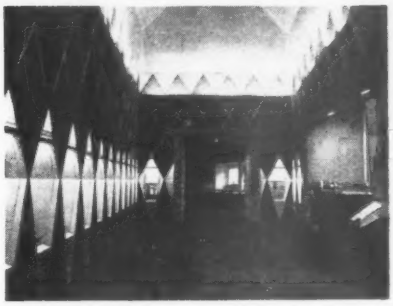
Basil Spence [*F*], Chief Architect; James Gardner, Chief Designer

THE SCOTTISH Version of *Britain Can Make It* follows its prototype in form and presentation in being a series of interiors of contrasting shapes and décor and employing a display technique of the same kind. There is, however, a smaller range of products and much greater attention paid to the country itself so that at times the visitor rather wonders whether the exhibition is 'talking' to the foreign buyer or to the Scots themselves; for example, the large section 'Scotland Tomorrow' which is sponsored by the Department of Health for Scotland is almost entirely propaganda for good housing, hydro-electric power production and health services; while this might possibly induce a foreigner to start a factory in Scotland, it is really telling the Scots what their life in the future may be like.

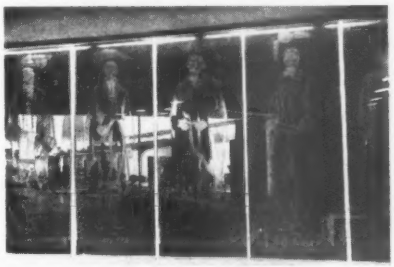
Mr. Basil Spence, Mr. James Gardner and their team of architects and designers have clearly profited from thought on their effects at the Victoria and Albert Museum; the display methods at Edinburgh are less distracting from the actual exhibits, though here and there the idiosyncrasies of the display designer tend to obtrude themselves a little too much. Admittedly an architect's reactions are not necessarily the same as those of the general public for whom the exhibition is intended; he is inclined to look deliberately at the décor to see how the effects are obtained.

One of the less dynamic and most successful sections is that devoted to printing and packaging, the ensemble designed by Rober Goodden [*A*]. In this the visitor, on entering, sees a printing machine after which he is led, almost involuntarily, along a series of enclosed, brilliantly lit showcases each of which contains two, three or four examples of the fine printing and book production for which Scotland is famous. If the books had merely been ranged along a counter or table, the visitor would probably pass rapidly along, receiving only a general impression rather than studying each exhibit in detail, which Mr. Goodden's display makes him do.

If one likes dynamic display methods, the Fabrics section is an excellent example in which full advantage is taken of the possibilities of tweeds, tartans, worsteds, linen, lace and rayon. The illustration above gives no more than an impression of one end. There follows the Hall of Pinnacles containing small objects such as jewellery, kitchenware, toys, glass, pottery, hosiery and shoes. Here the display rather overshadows the exhibits and one has the impression that the amount of goods to be shown is not very great and that most of it is 'in the window'. Nevertheless, the footwear, hosiery and knitwear sections were of exceptionally high standards and the cookers by the Carron Company and R. & A. Main, Ltd., remind one that the ironfounders of Scotland are as long established and as competent as those of the English Midlands. In this room also is John Hutton's



The Printing and Packaging Section



The Engraved Glass Screen

superb engraved glass screen, of which we reproduce a photograph.

The foregoing remarks may sound a trifle carping. They are not meant to be so. One expects a very high standard in the work of the Council of Industrial Design and *Enterprise Scotland* is an excellent piece of showmanship The feeling of slight disappointment is perhaps due to there being nothing like the wealth of material available for *Britain Can Make It*, to some uncertainty of intention and to the exhibition being something of a repeat performance and therefore lacking the charm of novelty.

Practice Notes

Edited by Charles Woodward [*A*]

IN PARLIAMENT. London Squares (Public use). Asked what action he proposed to take to reopen the London Squares, the Minister of Town and Country Planning replied: The majority of London Squares are in private ownership and were never officially open to the public. Clause 111 (3) of the Town and Country Planning Bill now before Parliament would empower Metropolitan Boroughs, with the consent of the Minister of Health, to acquire any land in the borough for use as public open space, and it will be possible to acquire some of the London Squares under this provision. (15 July 1947.)

Factory Construction (Barrel Vault Roofing). Asked if he was aware that if the system of barrel vault roofing is employed in factory construction about two-fifths of the steel required for a steel frame roof can be saved; and whether, in view of the present shortage of steel, arrangements will be made to use this type of roofing, the Minister of Works replied: I am aware that barrel vault roofing would affect a saving of steel. There are, however, certain drawbacks to this form of construction for factory buildings, such as the difficulty of providing adequate roof lighting and the need for very extensive shuttering, involving a heavy call on timber. Only a few firms are competent to undertake the work, and I cannot hold out any expectation of a widespread adoption of this method in the near future. In answer to a further question as to whether the Minister would take the opinions of certain architects who had found the system of considerable value, and would he, if possible, save steel by utilizing their experience in this regard, the Minister replied: There is little purpose in saving steel, if, as a result of it, we use more timber, which is equally in short supply. (28 July 1947.)

MINISTRY OF HEALTH CIRCULARS. Circular L.R.L.13/47 addressed to Authorities in the London Region states that when licences are issued for the rebuilding of cost of works houses they should be endorsed to indicate the amount of timber required as approved by the War Damage Commission. This modifies the instruction in Circular 95/47.

A Supplement to Circular 76/46 refers to aluminium rainwater goods and their availability. Prices are given which, although higher than cast-iron equivalents, will be partially offset by the lightness of aluminium and that it is less fragile. It is suggested that this will reduce the cost of breakages, transport and installation.

Circular 132/47 deals with economy in the use of lead, and a memorandum, No. 3, issued by the Ministry of Works accompanies the Circular, and gives alternative uses of other materials. The use of light gauge copper tubes is recommended for hot and cold water pipes in small dwellings. The sizes of pipes are listed, and the thickness should not be in excess of that specified in B.S.S.659:1944.

Circular L.R.L. 15/47 refers to 'U' Licences for painting work in the London Region. It states that licensing authorities should consult Local Employment Exchanges so as to relate the issue of special 'U' licences to the employment position. In cases where such licences are issued the authority must be satisfied that the work will be put in hand within a period of 14 days, and the licences must contain a condition to that effect. The practice of issuing two licences, one for 'Painting' and one for 'Other Work', must be discontinued. This practice completely defeats the principle on which work was permitted to be licensed by authorities outside their quota.

Circular L.K.L.17/47 states that all schemes for preparing requisitioned property for temporary use in the London Region should be submitted to the Ministry for specific approval. Apart from war damage the scheme should not entail expenditure on preparation in excess of £50 per family, i.e. extra gas stoves, wash basins and other minor works.

Circular 137/47 states that as from 15 August no further licences should be issued by local authorities for the erection of houses, other than houses built in replacement of war-damaged houses, without the prior approval of the Principal Housing Officer. Special consideration will be given to proposals which would provide houses for letting at approved rents to agricultural workers, miners or key workers.

BUILDING LICENCES. Architects' liability. In the issue of the JOURNAL for May 1947 at page 386 Counsel's Opinion was published as to the liability of an architect in cases where the cost of the work has exceeded the amount authorized by the licence.

It is necessary to distinguish between the case where the excess cost is discovered during the *continuance* of the work and the case where it is discovered after the *completion* of the work. In the former case an application for a supplementary licence can be made, but in the latter case a licensing authority does not license *completed* work which is in excess of the authorized licensed amount. Such excess work is illegal. An architect's certificate in respect of the excess work would be invalid. In order to regularize the position, an explanation can be made to the licensing authority giving details of the excess work and the circumstances in which it occurred.

An application for a supplementary licence during the course of the work can be made immediately it is found necessary, giving full details and the circumstances leading to the request. If the application is sent by registered post work may be continued until it is stopped by the licensing authority.

Under Regulation 56A it is a defence to a charge brought for doing work in excess of the licence, for the person charged to prove that at the time when the work in respect of which he is charged was begun or carried out, he had reasonable grounds for believing that the cost would not exceed the amount of the licence.

In the case of work carried out in excess of the amount of a licence for which the architect has not given any instructions and may not even have been aware that such work was being or had been done, the defence under the Regulation would not be applicable if the architect is charged with exceeding the licensed amount. An architect gives such general supervision as to be satisfied that the contract is being and has been properly carried out, and constant supervision does not form part of his duty. It follows that unauthorized work may be carried out without his knowledge. In the event of a prosecution in which the architect is joined it is difficult to see how the architect could, in such circumstances, be found guilty, but in order that such a situation should not arise the proper course would appear to be to communicate with the licensing authority explaining that the excess work had been done without the architect's authority or knowledge and that certificates in excess of the licensed amount had not been issued.

DEFENCE REGULATION 56AB. (S.R. and O. 1947, No. 1551). This Order amends Regulation 56AB so that requirements as to wages and conditions will no longer be enforced under the Regulation. The only ground for revoking, suspending or refusing to grant a builder's certificate of registration will be a conviction under Regulation 56A, i.e. exceeding the amount specified in a building licence.

DEFENCE REGULATIONS 55 AND 55AA. (S.R. and O. 1947, No. 1698). This Order comes into force on 1 September, and makes it unlawful to acquire or seek to acquire any of the goods specified in the Schedule to the Order, for which a priority certificate has been given, in excess of the quantities in the priority certificate itself. It is also an offence to supply or offer to supply scheduled goods in excess of the quantities stated in the priority certificate. An explanatory memorandum is to be issued by the Ministry of Works detailing the procedure to be followed to meet the terms of the Order.

BRICKS (CHARGES). (S.R. and O. 1947, Nos. 1640, 1641, 1642). These Orders reduce the charges payable under the Bricks (Charges) Order, 1942, as amended, from 1*s.* 6*d.* to 6*d.* per thousand building bricks as from 1 August 1947. The maximum price of common building bricks is adjusted accordingly by S.R. and O. 1641 and 1642.

Modern Fixing Technique

By Kenneth E. Caine, T.D., A.M.I.E.E., A.I.Mech.E.
Manager and Consultant, Technical Service Department of the Rawlplug Company Limited

AIR TRAVELLERS of today would be horrified if they found that they were expected to entrust themselves, or their goods, to the aeroplane in which the Wright Brothers made the first flight in a power-driven heavier-than-air machine in December 1903, and yet many persons today are content to use fixing devices which were in use at the time of that memorable flight, and which are in their own way just as inefficient. Many people are still content to use the inefficient and insecure wood plug insert and grouted-in rag bolt, though some thirty years have passed since the late Mr. John Rawlings devised the first scientific and technically sound fixing device for use in hard materials.

Mr. Rawlings' invention began the production of the varied range of fixing appliances now known under the name Rawlplugs and, by interesting other inventors, virtually created the modern craft or technique of fixing. Today, as in the case of the aeroplane, the design of fixing devices has become a matter for the specialist, and their selection for a particular purpose calls for thought and a knowledge of the principles

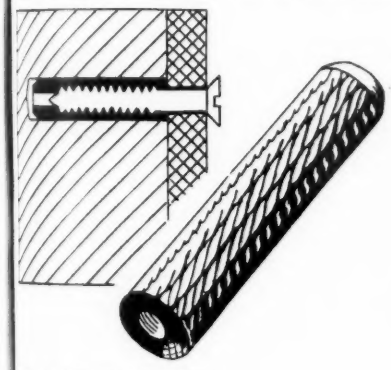


Fig. 1: Typical fibre plug

and limitations involved. The object of this article is to put before architects, consulting engineers and others, information that will help them to make the best choice of a fixing device to suit both the fitting that has to be fixed and the material to which it has to be attached. In this field the building industry lags far behind others, notably the aircraft industry. The following are some notes of the more common types of fixing devices usable in building.

Expansion-grip Plugs: The first type meriting consideration is the well-known fibre plug which employs the principle of grip by maximum possible expansion in relation to its bulk. Where wood screws are employed these fibre plugs provide the best method of making a secure fixing in all hard, homogeneous materials such as brick, stone, concrete, and so on, which can withstand the pressure set up by the insertion of the screw. These plugs are available in a variety of lengths for all sizes of wood screws and for coach-screws up to $\frac{3}{4}$ in. diameter; their diameters have been designed to give maximum expansion grip while at the same time permitting easy insertion of the screw. Reduction of the diameter of the plug increases the pressure exerted on the containing materials, and if these be of low inherent strength they may fracture; alternatively, the screw may shear due to the resistance met in driving it home. On the other hand, a larger diameter results in a reduction of expansion in relation to bulk, and a weaker fixing is the result. Both these considerations apply with equal force to plugs made of any substance, and this is the reason why it is essential to use the correct size of plug for any particular size of screw.

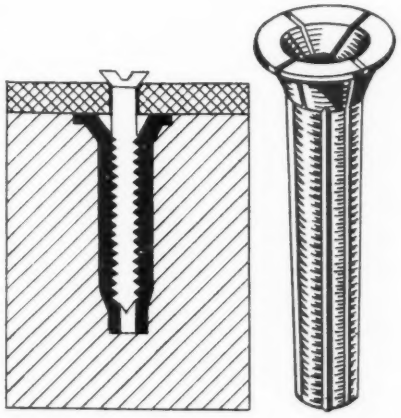


Fig. 2: A flanged lead plug

These fibre plugs are capable of carrying considerable loads; indeed, the largest will withstand a direct pull of over 4 tons, but, following the usual practice of providing a factor of safety, it is usual to assume a safe working load ranging from 50 lb. for the smallest to some 4,500 lb. for the largest when used in concrete, brick or materials of similar strength. An illustration of a typical fibre plug is given in Fig. 1.

Metal plugs were introduced to meet cases where fixings have to be made in wet positions such as swimming pools, harbours, docks, storage tanks, and similar places subjected to rapid temperature changes, vibration, or corrosion where fibre plugs would not be so suitable. In cases where the fixing hole passes right through the material, there is a danger that the plug may be pushed through to the void behind, and to prevent this lead plugs with a flange at the outer end may be used, as illustrated in Fig. 2. The holding power of metal plugs is less than that of the fibre variety, but the safe working load may be taken as being 75 per cent of that which a fibre plug will safely bear. In selecting a size and length of any type of plug it should be remembered that a long, thin plug will carry a greater safe load than a short, thicker one; consequently, where the thickness of material permits, it is wise to select the longest thin plug available to carry the required load. In making the selection, therefore, it is desirable to take into account the load, the number of fixing screws to be used, their length, and the nature of the material in which the plug will be inserted.

Front-of-Material Fixing: Many of the newer types of materials now in use are unsuitable for the employment of the principle of grip-by-expansion, either because they are too thin, or for some other reason. Typical examples of such materials are plasterboard, fibreboard, hollow bricks or tiles, asbestos cement sheets, and so on, where it is necessary to bore right through the material either to the reverse face or the void behind, or perhaps into some soft material such as expanded rubber or woodwool, in order to obtain a firm fixing against the front surface. To meet such cases new devices have been evolved which can be operated from the front of the fixing material in such a manner that no question of access to the reverse face arises. Such devices are principally of the toggle type, one form operating by gravity and another by a spring-loading method.

The gravity type is illustrated in Fig. 3, showing a $\frac{3}{16}$ in. Whitworth screw. To use this device, drill a $\frac{3}{8}$-in. hole right through the material to which the fitment is to be fixed. The screw is then put through the fixing hole in the fitment and is screwed into the swivel nut of the toggle; the toggle is then rotated so that it lies along the length of the screw, with the shorter portion towards the head of the screw. The screw and toggle are then inserted into the hole in the fixing material, and pushed through until the toggle is clear of the reverse face of the material, when the longer portion of the toggle—being heavier than the shorter portion—swings downward. Rotation of the screw then draws the toggle tight against

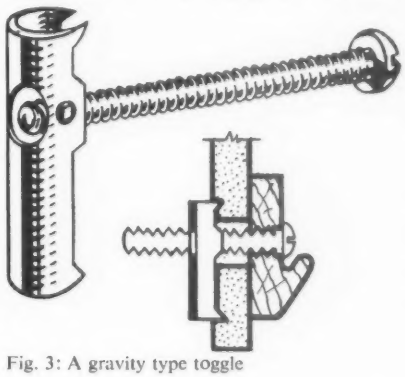


Fig. 3: A gravity type toggle

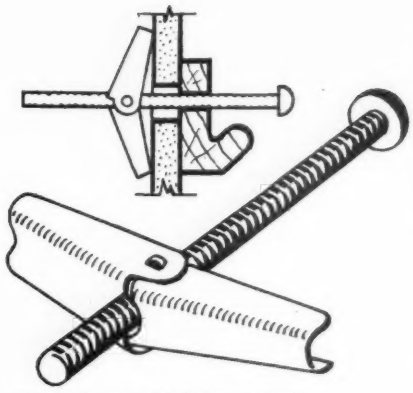


Fig. 4: A spring-loaded type toggle

the reverse side of the fixing material. (It will be at once obvious that when the screw is fitted into the toggle the end of the screw must not protrude clear of the toggle, because if it does the toggle cannot be rotated so as to lie along the length of the screw.) A $\frac{3}{16}$-in. screw with this toggle will carry a maximum load of about 300 lb. and will distribute it over a wide area, but it is advisable to allow a factor of safety dependent on the nature and strength of the material. A similar toggle is available using a $\frac{1}{4}$-in. Whitworth screw, and for this a $\frac{1}{2}$-in. hole is required.

A spring-loaded type of toggle is illustrated in Fig. 4; this is a little more expensive than its corresponding size of gravity toggle using a $\frac{3}{16}$-in. Whitworth screw, but has been introduced to meet cases where the action of gravity cannot be called into play, as for instance in ceilings, and it is especially useful for fixing to lath and plaster. In using this toggle the wings must be held down along the length of the screw with the fingers while it is being passed through the hole in the material. On emergence into the void behind the reverse face, the springs cause the wings of the toggle to fly outwards and thus they are drawn close to the reverse side of the fixing material by the rotation of the screw. The disadvantage of toggle fixings, though perhaps a small one, is that if the fitment has to be removed, the action of unscrewing the fixing screw will free the toggle, which is then lost in the inaccessible void behind, and of course they cannot be used where the void is not wide enough to allow the toggle to swing downward under gravity; however, they can be used in any thickness of material and the length of screw can be selected accordingly.

Where free space is limited, or where soft material is used as a backing for insulation purposes, the collapsible anchor is available. The standard sizes of screws for use with these anchors are $\frac{1}{8}$-in. and $\frac{3}{16}$-in. Whitworth for use in any fixing material not exceeding $\frac{1}{2}$ in. thick, but where the material is thicker than that, or where larger sizes of screws are required, special-purpose anchors would have to be made for the job. These anchors are shown in Fig. 5, in which a $\frac{3}{16}$-in. size is given as an example. For this size it is necessary to drill a $\frac{5}{32}$-in. diameter hole through the fixing material. If there is internal soft material, the hole should extend far enough to accommodate the length of the anchor. The anchor is then inserted into the hole as if it were a solid plug. If it is made of brass it is only necessary to rotate the fixing screw in the ordinary way, thus causing the threaded portion of the anchor to be drawn back along the screw until the head of the anchor reaches the back face of the fitment, when further rotation will make the thin connecting sides of the anchor bow outwards and press against the reverse face of the fixing material, thus forming a kind of wing nut. This device will bear maximum direct loads of from 100 lb. to 300 lb. according to size and type. A special collapsing tool is available for use where large quantities are being installed.

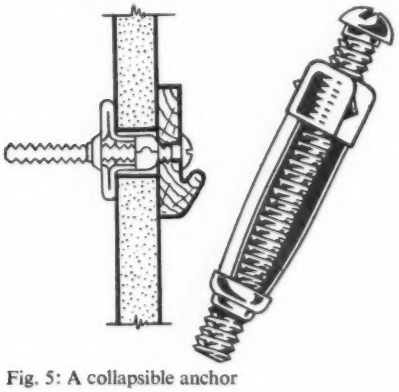


Fig. 5: A collapsible anchor

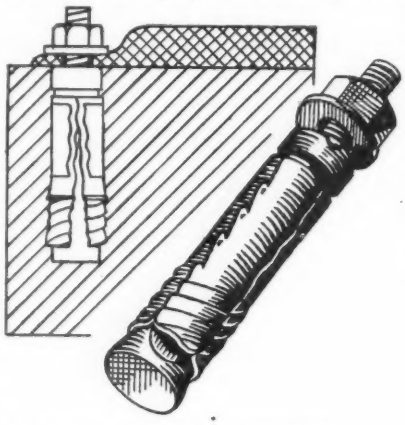


Fig. 6: Expanding bolt-projecting type

Heavy Duty Fixing Devices: Heavy duty fixing devices consist of two main types, namely, the bolt-projecting and loose bolt types. In both varieties the principle of grip-by-expansion is employed. The construction of the expanding bolt consists of an outer segmental shell of malleable iron held together by a corrugated steel ferrule at the top end, while at the other end there is a conical nut, if it is of the loose bolt variety, or a conical-shaped bolt head if it is of the bolt-projecting kind as illustrated in Fig. 6. In both types the action of tightening up the external fixing nut is to draw the conical member into the soft shell and so cause it to expand and grip the walls of the fixing hole.

The reason for the two varieties of expansion bolt is to meet two differing needs; first, where certain fitments have to be passed over the supporting bolts before being tightened (bolt-projecting type), and secondly, where it is desired to avoid lifting heavy fitments over the projecting part of the bolt, or when the projection of the bolt above the surface of the fitment would be objectionable, and for such cases the loose bolt type of fixing device is suitable. In both instances the bolt is able to take its full load immediately and no grouting-in is required. The strength of this fixing in concrete of good quality is equal to that of the bolt itself at the base of its thread, either tensile or in shear, according to the type of load.

There are varieties of expansion bolt in which an expansion member is placed at both ends of the shell, but such refinements seem to be unnecessary and may even result in a weaker fixing. This statement is based on the fact that when concrete fractures it does so along an angle of approximately 45 deg.; consequently there must be a sufficient volume of concrete above the points of grip to carry the load. In materials such as brick—where a sufficient volume cannot be obtained with the standard length of shell—the difficulty can be overcome by boring to a greater depth and using distance collars to bridge the space between the top of the expansion bolt and the underside of the fitment. Fig. 7 illustrates this arrangement.

Expansion bolts provide the best method of fixing heavy fitments and are available in all sizes from $\frac{1}{4}$ in. up to 1 in. diameter. When, however, the fixing has to be made in conditions where dampness or corrosion is to be expected, it is advisable to use the bolt anchor illustrated in Fig. 8. Here any standard bolt, capable of being protected from rust and corrosion by the usual means, is taken and inserted head downwards in a

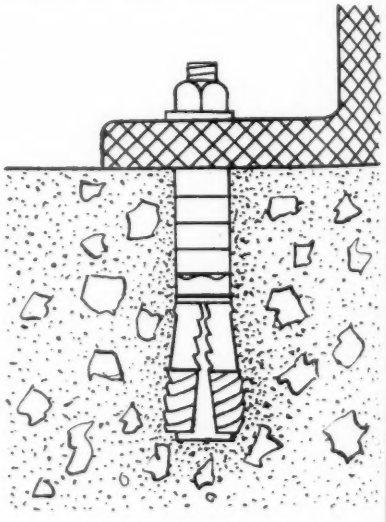


Fig. 7: Expanding bolt with distance collars

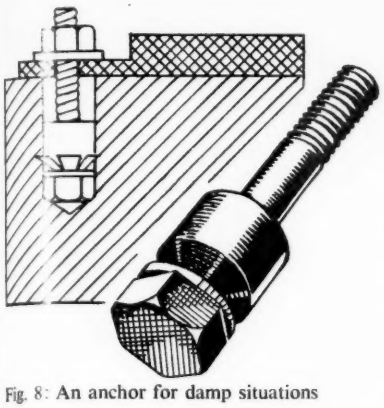


Fig. 8: An anchor for damp situations

hole bored to the required depth. The anchor is slipped over the bolt with the chilled steel cone downwards, a specially hardened steel washer being placed between the anchor and the bolt-head. The anchor is then caulked and is ready to take its permissible load. In this type of anchor there is a chilled steel cone in association with lead, and the effect of caulking with a caulking tool and a few blows from a 4-lb. hammer is to cause the teeth of the cone to open outwards against the walls of the hole, into which they dig. Caulking with lead protects the cone from the harmful effects of water or other causes of corrosion. Bolts fixed by anchors are as permanent and secure as any rag-bolt fixing and are without its disadvantages, but, unlike the expansion bolts, they cannot be removed.

Special Devices: Only the more general types of fixing devices have been explained above; to describe them all would take more space than is at my disposal; however, there are a few which merit attention, as they have been introduced to meet special requirements. Fig. 9 shows a convenient method of making fixings in wood-wool slabs; it consists of a metal shield with teeth. On inserting the shield into the slab the teeth press outwards into the wood-wool. A fibre plug is then inserted into the shield, when the normal grip-by-expansion principle comes into play. The actual fixing is then made in the usual way. Where the perfect alignment of a timber floor is required, the jack illustrated in Fig. 10 will enable it to be done. The jack can also be used to control the amount of sag over any given space.

Hole Boring: In considering the technique of fixing it is necessary to decide which of the available methods of boring the holes should be adopted. Boring can be done either by hand or by an electric or pneumatic tool, and full details of the required fixing must be known before a decision can be made, after considering the economics of the matter. For instance, if the number of holes to be bored is comparatively small, the hand method is obviously the cheapest, whereas if the number is great either electric or pneumatic operation will reduce labour costs, even to the extent of making it worth while to purchase the necessary plant for the job.

In conclusion, it is felt that enough has been said to show that this important subject should no longer be left to chance, as in the past, and that this description of fixing devices may well end, as it began, with a reference to the aeroplane. Without going into aero-dynamics, it is obvious that an aeroplane leaves the ground and is maintained in flight only by properly applying a knowledge of the forces brought into play, and that it could not remain above the earth suspended on what are jokingly referred to as 'sky hooks'; in like manner the practice cannot be defended of leaving to inexperienced choice forms of fixing that may be unsuitable from the point of view of both strength and the material in which they are inserted.

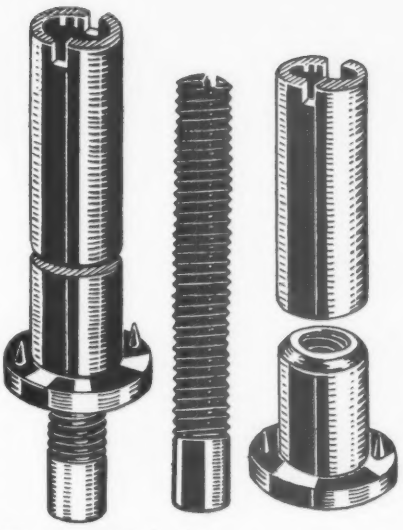


Fig. 10: An aligning jack

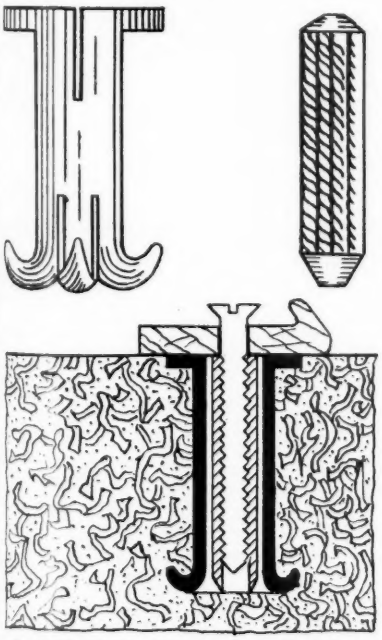


Fig. 9: Metal shield suitable for fixing in wood-wool

Correspondence

PLANNING FOR DAYLIGHT

Sir,—The article by Mr. W. Allen of the Building Research Station and Mr. D. Crompton of the Ministry of Town and Country Planning, in the August issue of the JOURNAL, in so far as it may be regarded as an exposition of official views, greatly assists a full understanding of the report of Dr. Holden and Professor Holford on the reconstruction of the City of London.

The vitally important restrictions on the post-war rebuilding of bombed areas in the interests of natural lighting which are recommended in that Report appear to represent the interpretation of the consultants, in practical terms, of what has been given to them as the standards which are officially recommended. The article consists largely of calculated data obtained from a novel and ingenious method of implementing the advantages of what is termed 'open planning'.

The inference which is presumably intended to be drawn from the official calculations in the article, although not specifically stated, is that wherever open planning can be made compulsory it should be possible to limit permissible obstruction by new buildings to the equivalent of an average continuous horizontal obstruction at only about 35 degrees elevation, as in a fairly open suburb. The potentialities of open planning are easily over-estimated, and the official figures and the standard upon which they are based, clearly require more consideration than is possible within the limits of a letter.

May I, however, be permitted to deprecate the suggestion in the article that a certain measuring diagram, for which I am responsible, should be used in planning for daylight. This particular diagram was devised for a special purpose and that only, i.e., the correction of an official American diagram which purported to correct the ordinary rectangular web for the small loss of incident daylight in its passage through clean window glass. The corrected diagram was, I am informed, adopted officially in America after its publication in the R.I.B.A. JOURNAL of 17 October 1936; but being true only for one particular type of window glass it was, of course, unsuitable for general purposes, and I believe that no further use was made of it.

Ostensibly it should increase accuracy by eliminating one of the two doubtful components of the daylight factor, reflected light and loss through glass, which are usually disregarded as being too small to affect the amount of the remaining

predominant component, known as the sky factor, of direct light from unobstructed sky; which alone is capable of precise measurement. As, however, the other two tend to cancel each other, the elimination of one only of them does not necessarily reduce the error involved by the usual practice of disregarding both as being negligible, but rather the reverse.

The method of setting out the special diagram being intricate and tedious, the result of its official substitution for the simple rectangular web hitherto recommended by the D.S.I.R. is to convey the impression that daylight measurements, if they are to be reliable, call for intricate scientific processes. Nothing could be further from the truth. Planning for daylight is simple enough; and, when carried out properly, usually quite easy.

After all, our present knowledge of what constitutes good natural lighting indoors is really confined to what we can learn from the study and observation of 17th and 18th century buildings, which were erected before unrestricted overbuilding left every window at the mercy of selfish neighbours unless it were protected by the often capricious and always expensive law of private rights of light, thereby rendering 'scientific' (i.e., efficient) fenestration more or less a waste of time.

Our forefathers had never heard of daylight factors, but fortunately they had ample architectural common sense. Town planning has now given the architects of today like opportunities. They should not be discouraged from using them. Yours faithfully,

PERCY J. WALDRAM [*L*]

OPPORTUNITIES IN INDIA FOR ARCHITECTS

Sir,—Much of what Mr. C. G. Blomfield wrote on opportunities in India for architects is correct, but some part may be misleading. The recent attitude of the educated Indians has been friendly, but there have been outbreaks of mob rule, and the mob is not discriminating. Acquaintances of mine have been accidentally involved and injured or had a stone through their car window. All public appointments are being advertised for 'domiciled architects', so that, although it is a fact that there are not sufficient Indian architects to fill them, the local governments are trying to recruit their own countrymen. A few firms and Government departments have been reducing their architectural staff of late as they cannot get materials. Salaries offered for some important posts have been considerably reduced since their British holders left. This will change when it becomes apparent that sufficiently qualified men are not available.

A number of contracting concerns employ their own architects and quantity surveyors, and advertise themselves so. The salaries they have offered may sound good to someone in the U.K. when converted to pounds sterling. Disillusionment comes when it is found that it is not sufficient to pay for the man's accommodation in town and the wife's accommodation in the hills during the two or three months' hot weather. The education of children is a problem. There is opening for technical men for industrial installations, also for the private architect if he is prepared to do a lot of the donkey work himself, for there is a great shortage of architectural assistants. Drawing at full pressure at a temperature of 108 degrees and humidity at 95 per cent, fortunately not frequent, can be very trying.

There is a great shortage of steel in India and the position is much the same as in the U.K., South Africa and Australia, that there is a lot of work on paper but not much chance of constructing anything except by slow degrees. Railways' restrictions, famine conditions and riots also prevent the timely arrival of materials when obtained. I disagree with Mr. Blomfield that the Indian likes to have quantities. It takes a great deal of persuasion at times with new clients, even European, though once they have employed a good quantity surveyor they will ask for quantities on the next job. The curse in India, with large industrial concerns, is the 'departmental labour' and the inexperienced 'overseer'. Gradually these concerns are being educated to the fact that they do not save money or necessarily get a good job by these means. For smaller works there is the untrained draughtsman making plans for £25 a time, the owner building the work himself with his own labour.

The next point in which I disagree is that of the three or four months' leave periodically. From my eleven years' experience, which is less than that of Mr. Blomfield, and from observation, unless an architect has a good partner, in the same town, he will return from leave and find that he has to start to rebuild his practice and re-collect his staff. I am not trying to dissuade architects from coming out here, and I agree that there will be an enormous amount of work, if money and materials are available, in the next few years. To anyone thinking of trying their luck out here, I advise that they make very careful enquiries before doing so, and if they do decide to come, then do not be guided by first impressions and dash back, as some have done. There is no similarity between Bombay, Delhi, Madras, Calcutta or Karachi and problems in each place are different. Some swear by one place and some by another; there is a chance to meet your taste. Mr. Blomfield is very right when he says that you must make your home here and get to know, understand the Indian, and make a friend of him. India is no longer an Eldorado for get rich quick methods, and a good, sound, steady practice backed by some toil and plenty of sweat will be sufficiently rewarded in time. Yours faithfully,

C. J. PARKER [*A*]

THE ORIGINS OF DISTRICT HEATING

Sir,—Mr. J. R. Kell, in his most valuable paper on District Heating published in the August number of the JOURNAL, raises a small point of historical interest in his attribution of the original idea to Brunel via C. J. Richardson. I suspect that the honour of invention should go neither to an architect nor to an engineer but, as with so many other technical advances, to a gardener.

On 15 March 1832, A. M. Perkins, the American-born inventor of modern 'central' heating, contributed to the GARDENER'S MAGAZINE an article on a *Plan for heating hot-houses by the Circulation of hot water in hermetically sealed tubes of small Diameter*. J. C. London, the editor, in the course of a long footnote adds:—

'. . . however favourable this plan may be for heating hot-houses, the advantages for that class of structure are as nothing as compared to those which it offers for heating dwelling-houses. . . . Water at 500 degrees or, at least, water at 300 degrees, for the purpose of cooking, and for heating reserve cisterns of cold water, or masses of metal or masonry, for various domestic purposes, including warming rooms, heating baths, laundries, etc., may, at no distant time, be circulated by companies in the same manner as gas; and, in London, instead of one fire for every room, as at present, there may be only one in a parish, or in every square of an acre in area.'

The theme is developed in Design LXXX in his *Encyclopædia of Cottage Farm and Villa Architecture and Furniture*, published the following year. Sydney Smirke's *Suggestions for the architectural improvement of the western part of London*, quoted by Richardson, appeared only in 1834, and Richardson's own *Popular Treatise on the Warming and Ventilation of buildings* not till 1837. Yours truly,

GODFREY SAMUEL [*F*]

A copy of The Hon. Godfrey Samuel's letter was sent to Mr. Kell, who replies:

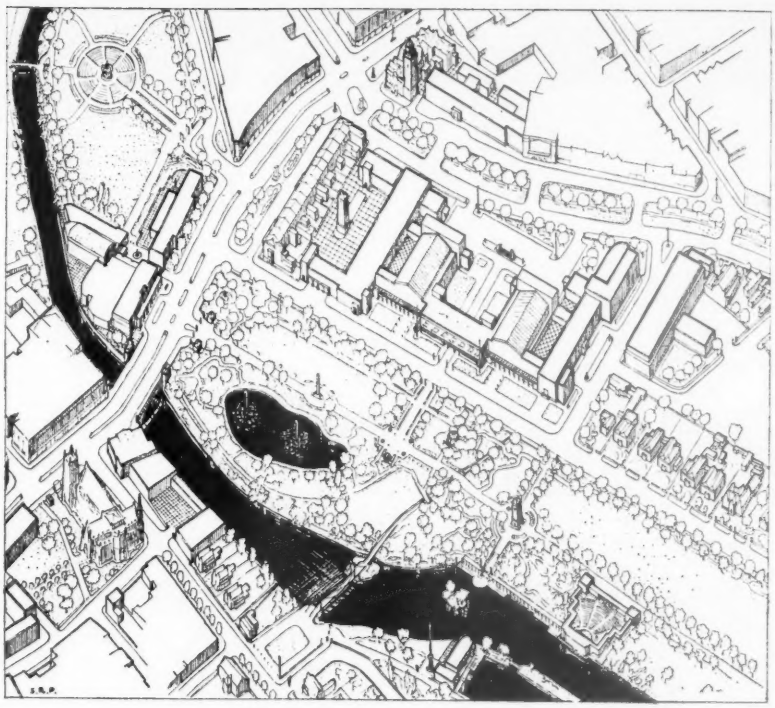
In my paper I was not concerned with the origin of 'Central heating', but with the origin of 'District' heating.

The origin of central heating goes back much earlier than the invention of the American, Mr. A. M. Perkins, in 1832. In my paper to the I.H.V.E. in May 1944 I referred to the use of steam for the heating of greenhouses, etc., as early as 1745, and in 1791 the first patents were taken out. using steam for churches, etc. Rumford followed in 1801 with further applications of the method.

My paper to the R.I.B.A. on the subject of district heating was not concerned with this, but with the distribution of heat to a number of buildings with mains running in the streets of a town. I have so far found no example referred to earlier than the Lockport installation in 1877, though there are no doubt many buildings of the institution type, such as hospitals, workhouses, etc., which were heated prior to this from a central point, with mains running in tunnels. etc., about the estate. This, however, is different from a commercial district heating scheme in which heat is sold to customers connected to the system.

Correction: In the report of the discussion following Mr. Kell's lecture on District Heating (p. 519 of the August JOURNAL), Mr. Leeming was quoted as saying '7d. per 1,000 ft.'. This should have been '7d. per 100 ft.'.

Book Reviews



Aerial perspective of the replanned centre of Leamington; from the Plan for Development reviewed on this page

Royal Leamington Spa—A Plan for Development, by *C. H. James, R.A.* [*F*] and *S. Rowland Pierce* [*F*]. 4to. pp. 94. Royal Leamington Spa Council. 1947. 7*s.* 6*d.*

It is not surprising that the authors of the Town Plan for Norwich should have approached the smaller problem of Leamington Spa and presented their results with a simplicity that can only come from experience. The Plan for Development is placed before the public in a way that is comprehensible both to the technician and to the lay public. It is clearly written, well illustrated with line drawings, and accompanied by a series of excellent photographs by Arnold Kent, who is to be recognized as a personality in the sphere of architectural photography.

The future of Leamington is of more than local interest. On the one hand a wide public thinks affectionately of its English inland spas, with their whiff of the elegant days of the Regency; and on the other hand Leamington is one of the few towns of which the major part was planned, built, and landscaped as a more or less complete design. Recent history shows that there has been comparative stagnation, and quite rightly the Council called in an eminent firm of architects to advise on development.

In town planning there are two distinct stages. The first is the formulation of a programme, and the second is the translation of this programme into drawings. In deciding upon their future, which is intended to allow for an approximate increase in population from 30,000 to 45,000 persons, the Council were faced with three possible kinds of town, viz.: a town that would be primarily a spa, an industrial town, or a town that would maintain a balance between the two. The decision is momentous, for upon this may rest the character of the Borough for all time. As a basis of their plan the consultants have accepted the idea of the balanced town. Too much risk is thought to be involved in dependency on the Spa and accompanying amenity buildings as a major single industry; and conversely there is still too much prestige and beauty left in Leamington for the borough to be wholly swallowed by industry.

When a town of such a character as Leamington becomes an economically balanced town it must in the natural way of things lose something by compromise; a balanced town tends to cancel out pronounced individuality. Furthermore a partnership between two such different parties is likely to suffer in time by the irresistible expansion of the heavier of the two. There is in fact danger that the town may even be over-industrialized before the plan itself is realized. There was a tendency this way before the war, and now an additional 210 acres have been allocated for light industry, as well as small parcels of land elsewhere. At the figure of 25 persons per acre (which is low in relation to the excessive opening-up costs) this would represent 5,000 persons, or about twice the number of persons employed in industry that is justified by the proposed increase of 15,000.

The consultants stress the need of a community that is balanced socially as well as economically, and make particular reference to the mixing of classes. But they have been faced with an impossible task, for it is apparent that the difference that now proclaims itself between the areas north and south of the river is emphasized and perpetuated. Factory workers wish to live reasonably near their work, and service industries such as shops will develop to meet their needs.

Having decided upon, or accepted, the conditions of the programme, the consultants have developed their plans with all the care and skill for which they are known. It would be impertinent, therefore, to criticize this part of the work, without a special knowledge of the site. The new east by-pass appears only just sufficiently tempting to be used as such. There may be the usual difficulties with some of the elongated neighbourhoods in persuading the inhabitants to play. The original school programme appears to be less than what one would expect for a town of 45,000 persons, but there is an interesting concentration in the Secondary School for 750, which might create problems of access. The reviewer is at a loss to know why the green way through the town has been cut by the extensions to the Pump Room, and hopes that either this will be replanned, or the extensions be raised on stilts to allow the gardens to pass beneath. This landscape strip is one of the glories of the historic town, and as symbolic as the architecture of the graciousness and sensitivity of the age when the town was first planned and built.

G. A. JELLICOE [*F*]

Building Is Your Business, by *Mark Hartland Thomas.* 7½ in. 119 pp. text illus. London. Allan Wingate Limited. 1947. 7*s.* 6*d.*

There must be few architects who have not at one time or another had to explain laboriously to a client, whether an individual or a group of people, what he, as the prospective architect, does. And when this explanation has been given there are few clients of the kind who were in need of it who have not been astonished at the extent of the architect's function and amazed at the multitude of things that have to be done to achieve even the simplest of buildings. But most of us find that it is not only the client who admits ignorance, who is in fact ignorant of what an architect does. Many people who may have employed an architect, or who have been indirectly associated with a building project, or who are just normal, intelligent people, have very little knowledge of the extent of the work, the system, the progressive stages and the functions of the various participants involved in making a building. If a country was

composed of a population wholly ignorant of the basic laws or ethics of that country, no law making, or law enforcing, could possibly make that country great, let alone a reasonably secure and liveable place. So when the patrons and the users of buildings know little or nothing of how those buildings are made it is not surprising that so many buildings fail to achieve their purpose and fail to please, aesthetically and practically. The surprise is that any good buildings are achieved at all.

What a different state of affairs it would be if everybody, patrons or users of buildings, could read Mr. Hartland Thomas's little book, *Building Is Your Business*. And the great thing about this book is that anyone with a grain of intelligence can read it, and anyone with more intelligence can read it too without losing their intellectual superiority, and it would do no harm if every architect read it if only to enjoy the simple pleasure of being able to say to himself, 'Of course, I've always been saying that . . . I couldn't agree more . . . it is exactly what I told old So-and-So . . .' There is great satisfaction and stimulation in knowing that one's own views have been expressed so concisely for you by someone else.

In four short chapters with a skilful collection of photographs and drawings Mr. Hartland Thomas explains all the stages as the architect designs and works up the project: as the specialists are called in: as the architect co-ordinates his team, and the building grows. In perfect simplicity and great clarity he shows the responsibility of one member of the team to the others, and each to the whole: the financial and legal implications (his precis of the Form of Contract must be one of the best examples of legal phraseology put into plain language) and so clean-cut are his descriptive powers that in a couple of paragraphs he tells you just what alternative methods of costing there are and their respective merits and relationship to the conditions under which the work is being carried out. And no architect can ever fail to be grateful to Mark Hartland Thomas for making so clear exactly how his fees are assessed and what a tremendous amount of work he has done to earn them. But even in Mark Hartland Thomas's clear style all this might be dull to just the mere user of a building if it was not for the fact that with equal clarity he relates it all to the real thing by one perfect little chapter on the purely aesthetic aspects of design and another on a simple exposition of basic materials and methods. To be quite sure that all his efforts are not spoilt by that tiresome person who just can't read your drawing although it all looks a very pretty picture to him but what size room is he going to have, he helps us right away by telling that person just what all the funny lines we have drawn really mean. And finally, because it has been all so good and helpful and might well induce some to believe that to be an architect is just the thing for them, we can forgive him for telling such bold spirits how they can set about to become one of our competitors.

Mr. Hartland Thomas could not have chosen a better time to produce this book. For 100 years we have had bad architecture: it is no good to deny it or point to the exceptions, the one does us no good when it is patently obvious to 99 per cent of the users of buildings that something is amiss with them, and the exceptions are not representative of the mass. Before that we had good architecture, some of the best that has ever been produced anywhere, it pleased, it worked, and it lasted. The cause of the bad 100 years is quite clear. It has been the change from the few well informed and knowledgeable patrons, with whom the architect worked closely as one individual to another to mould, with the partnership of a few craftsmen brought up in a long tradition of their craft, the few basic materials and methods into the form required by and for that individual, to the corporate patron, often ill informed and only partially interested, with whom the architect had to strike compromises, to attempt incorporation of one new method or material after another with which he was not wholly acquainted and the craftsmen scarcely at all, so that something could be produced that was acceptable to many, although seldom wholly pleasing or suitable to any. It is not sufficient for the architect alone to be knowledgeable, he is the expert who relies on intelligent co-operation and understanding from those he advises to enable him fully to develop his skill. These 100 years have inevitably produced architecture which represents one aspect of the social revolution which has been coincident with it. Now, in so far as we can judge in right perspective any current state of affairs, it seems that a definite stage in the change has been reached. The few individual patrons have given over to a great many quite ordinary people: they sit on this committee and that board, they are councillors, they come from every walk of life and together form our architecture. As individual users they have far greater say in, and far greater need for, the efficiency of the building they use. If contemporary architecture is to come up to the standard of the best that has come from the past these new corporate patrons and users must be as knowledgeable as the few individuals were. Building is now everyone's business. In fact patrons and users need today to be better informed because building is more complex, more variety of materials and methods, more precision, and the mechanic, as well as the craftsman, are our partners and money is more valuable.

No architect should have a copy of *Building Is Your Business* on his bookshelf: he should have a box of them ready to send out to each new Board or Committee who have become his clients.

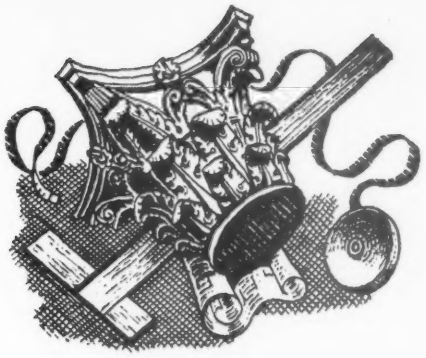
E. D. JEFFERISS MATTHEWS [*A*]

Acoustics for Architects, by *E. G. Richardson*. pp. 70. Edward Arnold. 1945. 5*s*.

This book is a re-publication by Dr. Richardson of his 1933 volume 'Acoustics of Building': the text has been revised and amplified and the final chapter enlarged. The book is intended for students and others. In his preface the objective of the earlier volume is re-stated, namely, to provide for the practising architect a statement of fundamental acoustic principles and to give some help in applying them. The subject is certainly presented to the student in its simplest academic terms, but the practising architect may feel a little disappointed. The book, we are told, is produced in complete conformity with the authorized economy standards, but we doubt whether so rigid a standard needs to be extended to the information conveyed, especially in the case of so difficult a subject, in which nearly every generalized statement finds for itself when translated into practice a dozen exceptions. Sabine's Law, for instance, doubtless remains a fundamental principle, but it is now realized that it applies only to auditories where there is random inter-reflection together with a moderate amount of distributed absorption. This is not merely a theoretical point; it means that the modern types of parabolic, megaphone and fan-shaped buildings which direct sound immediately upon a major absorbent do not, in fact, obey Sabine's Law. Of this there is no mention in the book. Dr. Richardson, however, is aware of the empirical nature of his subject and allows himself here and there some shrewd practical statements. In this book, for instance, occurs a serious attempt, not found elsewhere, to put the modern problem of loudspeakers before architects. This is useful. But for the most part the limpid concepts of the lecture-room are left undisturbed. Thus, on the subject of pitch and quality he says: 'Consonants such as *f* and *s* will, however, be decapitated if the higher frequencies are absorbed in an auditorium', and leaves it at that. But he does not, anywhere in the book, say that it is air absorption which is now thought to do a very large part of the 'decapitating', that a rough formula has been devised for calculating it, and that the matter is of importance in designing for music. In table VII there is a clerical error—the coefficient for 'plaster on brick' at 125 cycles is given as 0.12 instead of 0.012.

In regard to 'hints on acoustic design' his paragraph on theatres obviously refers to the older horseshoe type and should be compared with the very different problems of today as noted on the paragraphs on theatres in the Post-War Building Study No. 14 'Sound Insulation and Acoustics' (1944). This study report has been for some reason ignored. In our author's chapter on sound insulation the standards of noise reduction recommended for party walls are not mentioned and background noise is omitted. It should be noted that Morreau's figures for the noise reduction factors of brick walls, given in this book, are now recognized as too great by at least 5 db and are superseded by those given in the Study Report. This is important. It was found in practice that a 9 in. brick wall gave very roughly a reduction not of 55 db. but something less than 50 db, was in fact inadequate, and for that reason the dissociated party wall giving 55 db was officially recommended. HOPE BAGENAL [*F*]

Schools and Students



THIS COLUMN looks like dying of inanition. It started well, copy rolled in at first and all sorts of people promised support, including the heads of schools of architecture, but latterly there has been a falling off. The editorial staff has neither the time nor the necessary facilities to go in pursuit of copy among schools and students; it has to be sent to us and—libels excepted—we will print it, or at any rate select the most interesting material to fill the space available.

Now, we hear verbally from time to time of activities in schools of architecture which we know would be of interest to other schools and to students generally; there are successes to be noted; there are visits to buildings and works, holidays abroad and talks by visitors to be recorded for the benefit of others. The material exists, if only those responsible will remember to write about it and send it to us. May we make a suggestion? Will heads of schools and/or students' committees appoint a reporter—someone who is prepared to look at all school events with an eye for their news value, write about them, either shortly or at length as is necessary, and send them to the editor. The copy need not be typewritten so long as handwriting is legible.

Architectural societies often have difficulty in finding speakers who are experts on this or that. There is really no reason why those who do find good speakers and subjects should not let other societies know. If when a successful talk is given someone were to send us a summary or even a mere factual statement that it was given and that it was appreciated, he would be doing his fellow students a service, not that all expert speakers would be willing to *tour* architectural societies.

Some social events also have a news value and may be of use to other student societies. There is not much news value in a report of a dance at which a good time was had by all, but it is of general interest that School A played School B at rugger and beat them or that School C has started a mountaineering club. We know of one school which runs a very successful sailing club, but nobody thinks to report its doings or even tells others how it buys its boats and finances itself.

There are students in Dominion schools from whom those at home would like to hear—only don't send any menus of dinners! There are excursions for measured drawings and what not. Some schools have undertaken social surveys or replanned parts of their cities or in some way supported local charities or causes. Some have taken part in municipal housing weeks. But we cannot report these doings if nobody tells us about them.

Victory Scholarship 1946-47

Mr. Frank Booth [*A*], who was awarded the R.I.B.A. Victory Scholarship 1946-47, has been awarded a grant by the West Riding Education Committee to be used in conjunction with the scholarship for the purpose of study abroad. Mr. Booth travelled to America on 31 July and stays in the United States for two months to make a study of modern school architecture. Already he has received numerous invitations to meet well-known architects in the United States.

Mr. Booth, who is Senior Assistant Architect for Design in the office of the West Riding County Architect, won the R.I.B.A. Silver Medal for Schools in 1938 and was a finalist for the Rome Scholarship in 1939.

School of Architecture, School of Art, Manchester

The following Annual Prizes have been won by students of the School of Architecture, School of Art, Manchester: *Senior Design:* First Prize—K. Twist; Second Prize—Miss D. M. Fletcher (on Page 389 of the R.I.B.A. JOURNAL for May 1947 Miss D. M. Fletcher was erroneously shown as being a student of the University of Manchester School of Architecture, whereas she is a student of the Manchester School of Art). *Junior Design:* First Prize—P. T. Renninson; Second Prize—P. J. Spencley. *Sketches Prize:* First—J. C. Hadfield. *Beaumont Prize:* First—Miss B. M. Bailey. *Junior Measured Drawing:* First Prize—J. C. Hadfield; Second Prize—M. Cooper. *Senior Measured Drawing:* Second Prize—R. Shaw.

Headpiece Competition

At the head of this page is the winning design in the competition organized by Arch. S.A. It is by Mr. J. C. Brown [*S*] of Rugby. It has the merits of being a simple, straightforward device, not in itself too distracting from the type of which the presentation is the main function of the page. A good design was also submitted by Mr. A. I. Cripps [*S*] of Tilehurst, Berkshire, of three students seated at drawing boards and looking out of a modern window at an Italian-esque landscape. It was, however, rather too pictorial and also could not be reproduced as a line block. Another good design was by Mr. G. H. Fletcher [*S*] of Middlesbrough. The number sent in was disappointingly small and it was clear that several competitors were unaware of two technical items; first, that a design can be drawn large and reduced by the block-maker and that frequently it gains by reduction; secondly, that all lettering is set in type because type, being hand-cut by typographical experts, always looks better when printed than any kind of drawn lettering, unless it has been drawn by the aforementioned experts. Perhaps we should have directed competitors' attention to the article *Drawing* for *Reproduction* in the R.I.B.A. JOURNAL of September 1946, in which these and other points are mentioned. Altogether, we feel that the drawings submitted are not really representative of the design abilities of architectural students generally.

The Liverpool School of Architecture

At the recent Architects' Conference in Dublin a reunion of Liverpool ex-students was suggested. Will all those who trained at the Liverpool School write stating their preference for Liverpool, London or Dublin as a venue to: Harold Wyatt, Dipl. Arch. (Liverpool), 19 Walden Place, Welwyn Garden City, Herts.

If the response is satisfactory it is hoped to form a small Committee to undertake the necessary arrangements at once with a view to holding the reunion in the autumn or early winter.

The A.B.S.

Those who are starting a career can scarcely be expected, while they are pursuing it, to bother about running into hardship. But, nevertheless, some do, often through no fault of their own. Recently an ex-service man, just married, fell ill at the start of his career. Though he was eligible for some relief from the Ministry of Pensions, this was barely enough for the wife and an invalid husband, and was no real substitute for active work. This is where the Architects' Benevolent Society came in and made a grant.

Too few people realize that all government and official social benefit schemes are a network of regulations. Sooner or later someone falls through the meshes. The A.B.S. takes care of these unfortunates, because it is guided only by the hardship and genuineness of the case. But it needs more money to meet all the calls on its benevolence. Some student societies send the proceeds of dances, etc., to the A.B.S., but many do not. Why not hold at least one annual dance specially for the A.B.S.? Also you can get, on application to the Secretary of the A.B.S., a collecting box; it is surprising how the pennies mount up.

Notes and Notices

NOTICES

R.I.B.A. Distinction in Town Planning

The award of the R.I.B.A. Distinction in Town Planning, with effect from 1 June 1947, will be by conferment instead of by examination and will be limited to Fellows, Associates and Licentiates of the R.I.B.A.

The Distinction is the highest award in Town and Country Planning that the R.I.B.A. can bestow. It is primarily for members of the R.I.B.A. who have made some contribution in the field of large scale planning, especially in visual and three-dimensional planning which is so vital in the development schemes that will take place throughout the country.

Recommendations will be submitted to the Council by a standing committee to be set up for the purpose. The title of the award and the affix denoting it will remain unchanged.

Personal applications by candidates will not be entertained: the name of a candidate must be submitted by three sponsors, themselves members of the R.I.B.A., who will be required to submit the following particulars on behalf of the candidate: (*a*) details of professional qualifications and experience; (*b*) evidence of his work and achievements in the field of town and country planning, including three-dimensional planning; such evidence to consist of a list of the candidate's work together with references to professional journals in which the works have been illustrated; and such other evidence as may assist the committee in making their recommendation to the Council.

No fee will be required from the candidate. Those members who have already been awarded the Distinction will retain it and any present candidates for the examination for the Distinction under the previous procedure will be dealt with by the panel of examiners under that procedure.

The Use of Titles by Members of the Royal Institute

In view of the passing of the Architects Registration Act 1938, members whose names are on the Statutory Register are advised to make use simply of the title 'Chartered Architect' after the R.I.B.A. affix. The description 'Registered Architect' is no longer necessary.

Exhibitions of Designs by Students Exempted from the R.I.B.A. Intermediate and Final Examinations

The designs of students of Schools of Architecture recognized for exemption from the R.I.B.A. Intermediate Examination will be on exhibition at the R.I.B.A. from 1 to 7 October 1947 inclusive between the hours of 10 a.m. and 7 p.m. (Saturday 10 a.m. and 5 p.m.). The R.I.B.A. Bronze Medal for Recognized Schools and £5 in Books is awarded for the best set of drawings submitted.

The designs of students of Schools of Architecture recognized for exemption from the R.I.B.A. Final Examination will be on exhibition at the R.I.B.A. from 13 to 18 October 1947 inclusive between the hours of 10 a.m. and 7 p.m. (Saturday 10 a.m. and 5 p.m.). The R.I.B.A. Silver Medal for Recognized Schools of Architecture and £5 in Books is awarded for the best set of drawings submitted.

Exhibition of Architects' Working Drawings

An Exhibition of Architects' Working Drawings will be held at the R.I.B.A. from 22 to 30 October 1947 inclusive between the hours of 10 a.m. and 7 p.m. (Saturday 10 a.m. and 5 p.m.). The exhibition will contain the drawings that a practising architect hands to a contractor, and some very comprehensive sets will be shown. A special Students' Evening will be held at the exhibition on Wednesday 29 October at 6.30 p.m. All students are cordially invited to attend. It is hoped that the architects who have lent exhibits, or their representatives, will be present in order to explain the drawings to students. No cards of admission are required. Refreshments will be provided.

COMPETITIONS

Proposed Memorial at Liverpool to the Missing Naval Auxiliary Personnel of the Second World War

The Imperial War Graves Commission invite Architects who are ex-serving members of His Majesty's Forces to submit designs in competition for the Memorial to the Missing Naval Auxiliary Personnel of the Second World War, which they propose to erect on a site on the promenade at Liverpool.

Assessor: Mr. Edward Maufe, A.R.A. [*F*].

Premiums: £100, £60 and £30.

Last day for submitting designs: 19 December 1947.

Last day for questions: 24 October 1947.

Conditions may be obtained on application to the Secretary, Imperial War Graves Commission, 32 Grosvenor Gardens, S.W.1.

Deposit £1.

COMPETITION RESULT

Proposed Technical College, Peterborough

1. Mr. David C. H. Jenkin, B.A. (Arch.) London, A.M.T.P.I. [*A*].
2. Messrs. E. D. Lyons and L. Israel [*A*/*A*].
3. Messrs. Eric S. Atherton, Dip.T.P., A.M.T.P.I. [*A*] and Basil E. Brenchley, A.M.T.P.I [*A*] and Mr. S. Poole.

Commended

Messrs. Philip Powell and J. H. Moya [*A*/*A*].
Messrs. Vine and Vine [*A*/*A*].

Bessingby Housing Estate, Bridlington

The result of this competition was published in the August number of the JOURNAL. In addition to the three names given, the designs submitted by the following were commended:—

Mr. W. Barker [*A*].
Mr. B. Taylor [*A*] and Mr. H. B. Ward.
Messrs. Anthony Steel and Owen [*A*/*A*].
Mr. L. C. Moulin [*A*].

BOARD OF ARCHITECTURAL EDUCATION

R.I.B.A. Final Examination, July 1947.

The Final Examination was held in London, Edinburgh and Belfast from 2 to 11 July 1947.

Of the 212 candidates examined, 101 passed as follows:

Passed Whole Examination	48
Passed Whole Examination, subject to approval of Thesis	28
Passed Whole Examination, subject to approval of remaining Testimonies of Study and Thesis	2
Passed Whole Examination, subject to approval of remaining Testimonies of Study	2
Passed Part 1 only	21
	101
111 candidates were relegated.	—

The successful candidates are as follows:

Whole Examination

Adams, Ernest G. Y. (*Distinction in Thesis*)
*Alden, Marguerite Y. (Miss)
Allen, Frances E. (Miss) (*Distinction in Thesis*)
Barry, Patrick H.
Bartholomew, Victor G.
*Bates, Jack
†*Baxter, Kenneth M.
*Beard, Geoffrey J.
Bellamy, Ivan M.
Bishop, Lloyd J.
Boddington, Geoffrey D.
Bordoli, Maurice R.
Bowes, Joseph (*Distinction in Thesis*)
Brewins, Cyril D.
*Brewster, Kenneth A.
Brooks, Emily K. (Miss)
Brown, James H. C. (*Distinction in Thesis*)
Buckler, Derek
Busbridge, Pauline (Miss) (*Distinction in Thesis*)
*Chessum, Brian C.
*Clarke, Arthur D.
Coughlan, Neville G.
Cox, Neville H.
*Craig, Cameron N.
†Day, John B.
Drinkwater, Norman
Eckersley, Henry
Farrar, John
Firth, Harold
Fletcher, Dorothy M. (Miss)
*Frost, Fergus H.
Fury, Ronald W.
*Gardiner, Mary V. (Miss)
*Hall, Frederick E.
Hargreaves, Harry
Hartley, Thomas C.
Hayes, Thomas R.
Horton, Ronald W.
Howard, Albert V.
Hughes, Arthur G.
*Lawson, John B.
*Lowden, Douglas J.
*Magson, William Mitchell, Norman B.
Norfolk, Derek E. W.
†*Nullis, Norman C.
Nurse, Cecil R.
*Patten, Ronald A.
*Pearcy, Douglas
*Pearson, Gerald M.
Pepperell, David G.
*Pert, Keith G.
Platt, Geoffrey P.
Pollitt, Eric
Poole, Ralph S.
Price, Arthur G.
Prichard, Victor H. S.
Quickenden, Anthony M.
*Roscoe-Hudson, Alan
*Sanderson, Willie H.
Schwartzel, Stanley H.
†Searle, David O. (*Distinction in Thesis*)
*Sherret, David
*Sherwood, Arthur D.
*Shuttleworth, Herbert
*Smith, Haydn W.
*Sowerby, John G.
Tallet, Margaret (Miss)
Thornton, Frederick
*Tomlinson, Sydney G.
Tucker, Ernest F.
Vere, Stanley
Versino, Andrea G.
*Vincent, James L. S.
Vine, Sidney F. (*Distinction in Thesis*)
Watson, Alexander
*Wickham, James H. D.
*Wilson, James A.
Wood, Cyril R. M.
Woods, Roy

*Subject to approval of Thesis.

†Subject to approval of remaining Testimonies of Study.

Part 1 only

Alton, Jack P.
Bance, Roy E. K.
Bennis, David
Blockley, Leonard H.
Carman, John R. W.
Chandler, Leslie
Chitty, Howard J.
Curtis, John
Davies, Frederick C.
Driver, Margaret E. P. (Miss)
Hutchings, Lois M. (Miss)
Jacob, Christopher H.
Jhabvala, Cyrus S. H.
Jopling, Victor T.
Roberts, Jack
Sherman, Madeline M. (Miss)
†Thorne, George E.
Watson, Douglas H. R.
West, John C.
Whitney, James S.
Woodcock, George F. H.

†Subject to approval of remaining Testimonies of Study.

The Special Final Examination, July 1947.

The Special Final Examination was held in London, Edinburgh and Belfast from 2 to 11 July 1947.

Of the 320 candidates examined, 134 (30 in Part I only) passed.

186 candidates were relegated.

The successful candidates are as follows:

Whole Examination

Anderson, Robert
Bancroft, Bernard
Barbury, Peter J.
Barrell, George W.
Barrow, William L.
Beech, Geoffrey C.
Betts, Joseph H.
Bidmead, Rowland J.
Brown, James
Brown, Thomas
Burbridge, Kenneth D.
Butler-Bowden, Anthony W.
Carver, Owen P.
Cavanagh, Edmund J.
Clarke, Edward A.
Conway, Leslie J.
Cook, Claude O. J.
Cooper, Lyndon C.
Cowan, William
Crocker, Montague E.
Crowther, John
Date, Patrick
Dickson, William R.
Dixon, Arthur A.
Double, Robert J.
East, Francis J.
Evans, Cecil W. T.
Everett, Alan G.
Faulkner, Patrick A.
Furbank, Ronald E.
Fox, Leslie P. J.
Garrett, Rodney C.
Gates, Albert G.
Gomersall, Eric
Greatrex, Rolland I.
Griffiths, Charles L.
Grimes, James W. P.
Harvey, Eric G.
Haydon, George C.
Henderson, John E.
Hepworth, Arthur J.
Hollingworth, Harry
Johnson, Frank P.
Kidall, Joseph M.
Knight, Victor C. H.
Leach, Robert H.
Leary, Patrick J.
Lees, William P.
Leopard, Gordon C.
Lewis, Hubert R.
Locke, George S. K.
Lockerbie, James N.
Lusty, Raymond C.
Malkin, Henry F.
Mann, Maurice J.
Marinier, Hildyard V.
Mason, Frank L.
Matthews, Leslie B.
Miller, Eric V.
Mimmack, Maxwell A.
Morley, Leslie
Mort, William I.
Muirhead, William
Neale, Peter W. J.
Neil, Robert
O'Neill, Vincent H.
Panditratne, Andreas
Parkinson, Leslie E.
Parsons, Howard C.
Paul, Ernest H.
Pearson, John H.
Pethybridge, Robert E.
Pomfret, Arthur
Pope, David T. B.
Powell, Patrick J. L.
Power, Alan J.
Purnell, Norman K.
Ramsay, James
Sawyer, Peter R.
Sheffield, Frank C.
Shepherd, Alexander
Smee, Gordon E.
Smith, E. Watson
Soulsby, George E.
Southey, Frank L.
Stansfield, John C. O.
Stark, Ivan A.
Stronach, Elsbeth F. (Miss)
Stroud, Harry A.
Swift, Stanley
Symes, John J.
Trustam, Walter J.
Van der Steen, J. W.
Venvil, Brian F.
Vernon, Russell G. D.
Vint, George B.
Walker, Denis V. C.
Ward, William M.
West, John C. P.
Whiffen, Robert F.
Wigley, Ronald R. D.
Williams, John S.
Williamson, Stephen S.
Wilson, James H.

Part I only

Barns, Kenneth W.
Belam, Horace G. B.
Beesley, Sidney
Bellamy, Alfred J. S.
Bird, Kenneth J.
Boak, James L.
Boyt, Dennis F.
Brown, Reginald J.
Crammond, Maurice M.
Elmer, Joseph H.
Gasson, Arthur J.
Hanchet, Sidney J.
Hannaford, Avro F. J.
Hodnett, Alfred Ernest
Hunt, Douglas
Kane, John R.
Kenshole, James H.
Kinsman, Sidney J. C.
Langston, Albert H.
Little, John M. D.
Lovegrove, Cyril E.
Luck, Leslie L.
Rowling, Alfred C.
Russell, Charles S.
Stacey, Stephen L. G.
Stent, John A.
Summers, Robert E.
Whitehouse, Joseph D.
Wilcox, Harold
Young, Kenneth M.

The following candidates have also passed the Special Final Examination:

Beresford, Jack
Chapman, Charles W. E.
Graham, Robert M.
Knott, Ronald F.
Makins, Thomas K.
Matthews, Gordon E.
Nicholas, Sydney E.
Powell, Patrick T.
Raynham, James E.
Slater, John M.
Tyler, Richard M. T.
Whitelaw, Alexander R.
Williams, William T.

The Examination in Professional Practice for Students of Schools of Architecture Recognized for Exemption from the R.I.B.A. Final Examination

The Examination was held in Edinburgh on 8 and 10 July 1947. Of the 16 candidates examined, 11 passed and 5 were relegated.

The successful candidates are as follows:

Borland, Marjorie K. (Miss)
Buchanan, Alexander M.
Cina, Alan J.
Doak, Archibald M.
Elborn, Arthur J.
Robertson, Robert M.
Rogerson, Robert W. K. C.
Torrance, Hugh D. B.
Wallace, Kenneth G.
Watson, Alexander R. S.
Wheeler, Harry A.

ALLIED SOCIETIES

Changes in Officers and Address

Essex, Cambridge and Hertfordshire Society of Architects. Hon. Secretary, S. E. Bragg [*A*] 'Eleven,' St. Fabians Drive, Chelmsford.

Royal Victorian Institute of Architects, President, W. R. Godfrey, 8, Chesterfield Avenue, Malvern, S.E.4, Victoria, Australia.

Nova Scotia Association of Architects, President, Mr. A. E. Priest, 428, Robie Street, Halifax, Nova Scotia. Hon. Secretary-Treasurer, Mr. Allen F. Duffus, Green Lantern Building, Halifax, Nova Scotia.

Alberta Association of Architects. Hon. Secretary, Mr. Gordon K. Wynn (Edmonton, Alberta).

York and East Yorkshire Architectural Society. Mr. Andrew Rankine, O.B.E. [*A*], City Architect, Guildhall, Hull, has succeeded Mr. W. E. Biscomb as President of this Society.

Rhode Island Chapter, American Institute of Architects. Mr. Edwin E. Cull has succeeded Mr. Philip Creer as Secretary. Mr. Cull's address is Providence, Rhode Island.

Guildford District Chapter, South Eastern Society of Architects. Chairman, H. N. Haines [*L*], 1 and 2 Gray's Inn Place, London, W.C.1. Hon. Secretary, G. M. Kingsford [*F*], "Brendon," Nightingale Road, East Horsley, Surrey.

Western Australian Chapter, R.I.A.I. Secretary, E. G. Sier, 7th Floor, Gledden Building, Hay Street, Perth, W.A.

Exeter Branch, Devon and Cornwall Architectural Society. Hon. Secretary, R. J. Lane [*A*], 15 Mansfield Road, Exeter.

GENERAL NOTES

Acknowledgement

Helen Rosenau, Ph.D., wishes to thank the trustees of the Sir John Soane Museum for permission to reproduce Figs. 2, 3, 5, 6, 7, 10, 11 and 15 in connection with her article on George Dance the Younger in the August JOURNAL.

Correction

The Waldram diagrams for Figs. 5 and 14 in the article, 'A Form of Control of Building Development in Terms of Daylighting', in the August JOURNAL should be exchanged and the caption to Fig. 5 should read: '. . . showing four alternative patches', not three as printed.

R.I.B.A. Library Hours

During September the Library hours of opening will be normal except that, as in previous years, the Library will close *on Saturdays* at 2 p.m. instead of 5 p.m. (In the August number the words in italics were omitted.)

Obituaries

Charles Edward Bateman [*F*], former President of the Birmingham and Five Counties architectural Association, died at his home Bourton-on-the-Hill on 5 August, 1947, in his 85th year. Mr. Holland W. Hobbis [*F*] has sent the following appreciation:—

'Charles Edward Bateman was born at Castle Bromwich on 8 June, 1863. He was the son of John Jones Bateman, a Birmingham architect. He was educated at St. Marylebone Grammar School, Regents Park, and at Grange School, Eastbourne. He received his first architectural training in his father's office and later with Verity and Hunt of London and Evesham. It was this association which brought him in contact with traditional Cotswold architecture, as Verity and Hunt were then doing much work at Evesham and the surrounding Cotswold country. It was the work of such men as Sir Guy Dauber, N. Prentice and Charles Bateman who have preserved and carried on the Cotswold tradition.

'Bateman's work was no slavish copying of old examples, it was stamped with his own individuality but it was founded on all that was best in traditional work. He had a wonderful aptitude in making his buildings fit into their surroundings, especially in his country house work, as can be seen in such examples as Honiley Hall for the late H. L. Wade, Asthall Manor for Lord Redesdale, Extension of Lygon Arms, Broadway, or Sopworth for Colonel The Hon. Algernon Stanley, and in Little Cambrae.

'He regarded the layout of the grounds surrounding his buildings as important as the buildings themselves. To this end he studied not only garden layout but the cultivation of the trees, shrubs and flowers. All his best work was done in that generous period before or soon after the 1914-18 war. There are many beautiful houses in and about Sutton Coldfield designed by Mr. Bateman. Although domestic architecture would be regarded by his professional contempories as his 'forte' he was much interested in and carried out many alterations to Churches. St. Chads, Whitehouse Common was a completely new Church he designed. It is simple and direct in plan and beautiful in detail. He was particularly successful in embellishing old or Gothic Revival Churches with colour decoration. Sutton Coldfield Parish Church, St. Mary's, Lichfield, Wednesbury Parish Church and St. James, West Bromwich, are some of the most important he dealt with. He did much work

for hospitals, such as Sutton Coldfield, the Dental Hospital, Birmingham, the Royal Cripples Hospital, Northfield, and Cottage Hospitals at Moreton-in-the-Marsh, and Evesham district. He had an extensive practice in licensed houses and industrial buildings.

'In later years he was helped to a great extent by his partners, Messrs. Hale, Goldsbrough, Blennorhassett and Marriner, who have ably carried on the tradition established by the distinguished head of the firm of 'Bateman'.

'He became a member of the Birmingham and Five Counties Architectural Association in 1882 and was its President in the year 1897-99 and 1911-13. He was also a member of the Architectural Association (London) since 1893.

'In the early 20th century Mr. Bateman was a lecturer in architecture to the students at the School of Art, Birmingham.

'He was well-known in Freemasonry in Warwickshire, was keenly interested in many Masonic Lodges, and was a Past Provincial Grand Deacon of the Province of Warwickshire.

'There has been no Birmingham architect who has so much influenced the work of his contempories by his example as C. E. Bateman. He belonged to that group of distinguished men—Bidlake, Ball and Bateman—Bidlake for his teaching, Ball for his refinement and restraint, Bateman for his executed works. He has now passed away, but his work lives and will continue to be a source of example and inspiration for succeeding generations.'

Wilfrid S. Owen, M.A. [*F*] died on 15 July, 1947, at the age of 60. He was trained in Manchester and later in London, practising from 1919 to 1921 in association with Sir A. Stenning and Partners. His principal architectural works included domestic undertakings in London and environs and alterations to residences in Huntingdonshire and Hertfordshire.

Members' Column

This column is reserved for notices of changes of address, partnership and partnerships vacant, or wanted, practices for sale or wanted, office accommodation, and personal notices other than for posts wanted as salaried assistants for which the Institute's Employment Register is maintained.

APPOINTMENTS

Mr. C. A. Bransgrove [*A*] has been appointed Chief Architect to Messrs. Pauling and Co., Ltd., Civil Engineering Contractors for the groundnut project in Tanganyika. He will be pleased to receive trade catalogues, etc., from firms interested in exporting to East Africa. His address is P.O. Kongwa, Tanganyika, East Africa.

Mr. S. A. Cook [*A*] has been appointed Borough Architect, High Holborn, and will be pleased to receive trade catalogues, etc., at Housing and Planning Department, Town Hall, High Holborn, London.

Mr. Donald A. Goldfinch [*F*] has been appointed to the newly formed post of Architect to the Public Health Department, City of Birmingham. His address is Council House, Congreve Street, Birmingham 3.

Mr. B. F. Ratcliffe [*A*] has been appointed Senior Architect in Charge with the County Architect, West Riding County Council. His address is 28, Sunnydale Park, Station Road, Ossett, Yorks.

Mr. Thomas Sibthorp [*L*] has been appointed the first Chief Architect of the Metropolitan Borough of St. Pancras, following the separation of the department from the Borough Engineer and Surveyor. He will be pleased to receive trade catalogues, etc., at Architects Department, St. Pancras Town Hall, Euston Road, London, N.W.1 (Terminus 7070).

Habid J. A. Somjee [*F*], town planner to Punjab Improvement Trusts, has been appointed Consulting Architect to Government, West Punjab, P.W.D. Secretariat, Lahore. He will be pleased to receive trade catalogues, etc., at that address.

PRACTICES AND PARTNERSHIPS

Mr. G. B. Bridgman [*F*] having terminated his appointment with the Ministry of Health will shortly commence practice in the Sudan, where he will be pleased to receive trade catalogues, etc., c/o National Bank of Egypt, Khartoum, Sudan.

Mr. Hubert M. Fairweather, C.B.E. [*F*], **Mr. Robert W. Pite** [*F*] and **Mr. Geoffrey H. Fairweather** [*A*] practising as **Pite, Son, and Fairweather** at 6, Queen Anne's Gate, Westminster, S.W.1 (Whitehall 5576) have taken into partnership **Mr. W. N. B. George** [*A*].

Mr. John W. Greenwood [*A*] has taken over the practice of the late Mr. Harry Clayton [*L*] and is practising at 87, Henwick Road, St. John's, Worcester. He will be pleased to receive trade catalogues, etc., at the late Mr. Clayton's address, New Road, Bromyard, Herefordshire.

Mr. G. K. Moss [*A*] has commenced practice at 129, Kingsbury Road, Coventry (Coventry 5245) and will be pleased to receive trade catalogues, etc.

Mr. Kenneth Nealon [*A*] has commenced practice at 154, Redland Road, Bristol 6, where he will be pleased to receive trade catalogues, etc.

Mr. Hedley G. Radford [*A*] is now in charge of the Kampala branch office of **Cobb, Archer and Scammell.** He will be pleased to receive trade catalogues, etc., c o Cobb, Archer and Scammell, Private Bag, Kampala, Uganda, E. Africa.

Mr. G. L. Wilson [*F*], **Mr. E. E. Keen, Mr. P. O. G. Wakeham, O.B.E.** [*A*] and **Mr. A. Pullen** [*L*] practising as **Palmer and Turner,** announce that their Shanghai office at Mercantile Bank Buildings, 17, Canton Road, Shanghai, has been re-opened and they will be pleased to receive trade catalogues, etc., at that address.

CHANGES OF ADDRESS

Mr. Donald F. Armstrong [*A*] has moved from 11, Union Street, Glasgow, to c o Mr. Graham Crump, 43, George Street, Croydon, Surrey.

Mr. F. S. Bolland [*A*] of Partington and Bolland, Bolton, has removed from 2, Broadway, Cheadle, Cheshire, to 50, High Street, Manchester 13.

Mr. R. S. Dean [*A*] is now practising at 50, George Street, Croydon, Surrey (as well as Epsom), where he will be pleased to receive trade catalogues, etc.

Mr. R. Willis Deans [*A*] has removed from 37, Norfolk Street, Strand, London, W.C.2, to 231, Strand, Temple Bar, London, W.C.2 (Central 7739), where he will be pleased to receive trade catalogues, etc.

Mr. Howard Gealy [*A*] has commenced practice at 28, Windsor Place, Cardiff (Cardiff 2426) and will be pleased to receive trade catalogues, etc.

Mr. S. P. Jordan [*A*] has moved from Little Hall, Oakley Green, Windsor, to 1 Thurloe Street, London, S.W.7, where he will be pleased to receive trade catalogues, etc.

Mr. F. Morrall Maddox [*A*] has removed to 11 Church Street, Stourbridge, Worcs. (Stourbridge 57239).

Mr. John C. Morris [*L*] has removed from 27 Repton Road, Kenton, Middlesex, to 4 Tudor Drive, Otford, nr. Sevenoaks, Kent.

Mr. Gordon J. Timmis [*A*] is now with Messrs. Lunn & Lunn, 3 Station Road, Milnsbridge, Huddersfield.

Mr. A. F. Watson [*A*], architect to British European Airways, has moved to 10 Hill Street, Mayfair, W.1, and will be pleased to receive trade catalogues, etc.

PRACTICES AND PARTNERSHIPS WANTED AND AVAILABLE

Associate (32), with continental experience, seeks post in private practice Oxon. Berks area, with view to later partnership. Reply Box 77 c/o Secretary, R.I.B.A.

Associate, twenty years wide experience, own practice suffering from present conditions, would undertake part-time work or deputise for others. Special experience of war damage claims. Reply Box 81 c/o Secretary, R.I.B.A.

Associate desires purchase practice from retiring owner, with offices in Central or West London. Reply Box 80 c/o Secretary, R.I.B.A.

ACCOMMODATION

Fellow requires in New Year three rooms, minimum total area 600 ft. super. Would share if necessary. Reply Box 79, c/o Secretary, R.I.B.A.

London Fellow, shortly resuming pre-war practice, will be pleased to contact fellow member willing to render assistance in respect of accommodation and staff. Small works in hand and future schemes in preparation. Arrangement not necessarily temporary. Reply Box 78, c/o Secretary, R.I.B.A.

Large, light room to let in member's offices near South Kensington Station. Drawing office assistance available, if required. Reply Box 82, c/o Secretary, R.I.B.A.

"A.B.S"

House-Purchase Loans

Alternative Schemes

1. **Normal Advance:** 80 per cent. of valuation. **Interest:** 4 per cent. gross. (Borrower pays Survey Fee and Legal Costs, totalling 1½ per cent. of loan.)

2. **Normal Advance:** 85 per cent. of valuation. **Interest:** 4½ per cent. gross. (Office pays Survey Fee and own legal charges.)

Repayment by means of an Endowment Assurance term not exceeding 25 years under (1) or 30 years under (2).

Particulars from: The Secretary, A.B.S. Insurance Department, 66, Portland Place, London, W.1. (Tel.: WELbeck 5721.)